Digital Ship
June/July 2013
www.thedigitalship.com

Breakthrough reached on Inmarsat/Astrium GX deal

Inmarsat and Astrium have reached a broad agreement on a number of elements of a specially crafted deal which should soon see Astrium confirmed as the latest company able to provide the Ka-band Global Xpress service when the first satellite is launched later this year

Inmarsat and Astrium Services are close to a deal that will see Astrium, via its own partner channel as well as its direct sales unit Marlink, add Global Xpress (GX) to its portfolio of satellite communications services.

Digital Ship has learned that ongoing talks between the parties following the agreement of a Memorandum of Understanding (MOU) on the GX service, brokered in December 2012, have led to substantial progress on some of the main areas of contention that had been preventing a deal from being struck.

Astrium's position as something akin to a wholesaler, reaching the market through its own network of associated partners and resellers, had complicated GX talks somewhat.

A standard distribution deal similar to those agreed with the current list of confirmed GX VARs (value added resellers) would mean that Astrium would be able to garner a margin for itself only by having its partners sell GX services at a price above the other VARs – clearly an undesirable business model.

There were also differences with regard to the end-to-end infrastructure that Inmarsat had planned for the GX network, which would require any applications used with the service to be part of a central portal, adapted using an Inmarsat API (application programming interface) and approved by Inmarsat itself.

Erik Ceuppens, head of the Astrium Services Business Communications division, had previously admitted that there had been "tensions" between the parties on this particular point, with Astrium keen to maintain its partners' freedom to compete on the provision of value added services rather than having

The parties are now close to an agreement that would see Astrium add GX to its service portfolio

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Digital Ship

Vol 13 No 9

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DIGITAL SHIP @ NOR-SHIPPING
Thon Hotel Arena, Lillestrom
5 June 2013

DIGITAL SHIP JAPAN
The Capitol Hotel Tokyu, Tokyo
3-4 September 2013

DIGITAL SHIP SINGAPORE
Suntec, Singapore
1-2 October 2013

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

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this environment 'locked down'.

However, recent developments have helped to ease some of these tensions, with the parties having broadly agreed on a compromise that would suit both sides.

Inmarsat has now repositioned its strategy on the GX infrastructure (though not due to the Astrium negotiations), and is planning to allow a direct IP connection for shipboard applications to the satcom system without them necessarily having to be part of the approved application portal – removing one of Astrium's major concerns.

It is also understood that Inmarsat and Astrium have now broadly agreed on a deal that will see Astrium provided with GX capacity on commercial terms that are more favourable than those that are offered under the standard VAR contract – allowing room for a profit margin when it comes to reselling to partners.

With these developments it seems that the parties have resolved the major obstacles to a deal and should be able to put a firm agreement in place in the near future.

In response to questions from *Digital Ship,* Tore Morten Olsen, managing director of Astrium Services Business Communications' maritime division, was able to confirm that "there have been significant advancements in the negotiations since the earlier MoU agreement."

"Many elements have been closed, and some still remain. As we are negotiating a strategic partnership agreement which goes beyond current VAR agreements, there are more elements to close as well."

Very positive

Astrium says that it is now "very positive" that a concrete deal will be in place when the first GX satellite is launched later this year, though it will take time to iron out the remaining details in the contract.

'We are negotiating a strategic partnership agreement which goes beyond current VAR agreements' - Erik Ceuppens, Astrium Services

"Astrium Services is planning to offer the Global Xpress service to its partners and direct customers when the service is available. We are negotiating a strategic partnership agreement which goes beyond current VAR agreements," Mr Ceuppens told *Digital Ship.*

"Given the fact we are pioneering this agreement with Inmarsat, and not all components have been defined so far, both parties wants to take the necessary time to lay out the right terms, not only for Astrium Services and Inmarsat, but also for our partners and customers."

Mr Ceuppens sees the addition of GX to the Astrium portfolio as an extension of the company's core strategy of offering the widest possible range of services and allowing customers to choose from that list in accordance with their own requirements.

"Astrium Services plans to complement its maritime and land portfolio with Global Xpress so that it will create value for our partner channel but also ensure its existing value added services fit into the proposition we and our partners offer to customers / end users," he told us.

"The core of our business model is to grow jointly with our partners, which requires a client driven and open portfolio, based on users' requirements."

Mr Olsen notes that this philosophy of choice is an extension of what the company is trying to do with its existing technologies, evidenced by systems like the XChange platform.

"(XChange) provides an open system where partners can add their own applications and tools to meet different customer requirements and to build their own propositions," he told us.

"XChange also seamlessly combines different connectivity services – two L-band services, Ku-band, C-band and future Ka-band – thus providing a future proof management tool for crew and business communications which can be enriched with value adds from our partners."

'There have been significant advancements in the negotiations since the earlier MoU agreement' - Tore Morten Olsen, Astrium Services

Inevitable

There has always been a sense of inevitability that Astrium would eventually become part of the channel to bring GX to the maritime market.

As Inmarsat's single largest external distribution partner, Astrium is responsible for approximately 40 per cent of its maritime revenues, so it is almost unthinkable that the $1.5 billion investment into GX would be jeopardised by failing to make use of existing relationships with such a broad customer base.

As much as Inmarsat might like to gain more control over the market and its relationship with the end user, there is too much at stake for a publicly listed company to sever the cord with its biggest partner when launching a brand new service.

Similarly, Astrium's strategy of providing a complete portfolio of maritime satcom services would take a serious knock were it not to include the only globally available Ka-band network, and the latest innovation from the biggest player in the maritime communications market – despite the fact that it would clearly prefer customers to choose its own Ku-band or C-band VSAT products.

In the end, for both of these maritime communications powerhouses, the prospect of life without each other was too grim to comprehend – and so, as the Dutch philosopher Desiderius Erasmus once wrote, the most disadvantageous peace is better than the most just war.

Whether this marriage of convenience will put an end to the tension between the parties, and allow both sides to live happily ever after, should become clear in the next few months. DS

Astrium Services has upgraded its customer care, logistics and training facilities in Singapore, adding tier 1 and tier 2 support for customers in the Asia Pacific region. The facility now keeps a wider stock of VSAT equipment, including Ku-band antennas, modems, routers, and spare parts, and offers expanded training facilities.

Furuno will now distribute **Setel Hellas'** products and solutions after its Greek subsidiary Furuno Hellas signed a partnership agreement with the Piraeus-based ICT company.

www.astrium.eads.net/en/business-communications

www.furuno.gr

www.setel-group.com

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KVH has struck a partnership with Iridium to provide extended satellite coverage to customers equipped with its new TracPhone V3-IP system.

KVH's mini-VSAT Broadband service relies on Ku-band satellites which cover north of the equator and most major shipping routes south of the equator. Iridium uses a network of Low Earth Orbit (LEO) satellites circling the planet; it can thus offer L-band service over 100 per cent of the Earth's surface, including Polar waters beyond the reach of geostationary satellites.

The new partnership will see KVH introduce an integrated service package that pairs its mini-VSAT Broadband service with Iridium's OpenPort broadband service.

The integrated shipboard system combines an Iridium Pilot unit with a KVH TracPhone V3-IP terminal. When mini-VSAT Broadband service is unavailable, the system switches the onboard LAN and Wi-Fi networks to the Iridium OpenPort broadband service, and back to mini-VSAT Broadband when it becomes available again.

The switch is operated automatically by the network management functionality in KVH's Integrated CommBox Modem (ICM) and no human intervention is needed, says KVH.

"This integrated solution offers mariners an unbeatable combination of reliable, affordable broadband, shipboard communications, and seamless global connectivity," explains Brent Bruun, executive vice president of KVH's mobile broadband group.

"The lightweight, compact antenna units offer the benefits of low-cost broadband communications for vessels ranging from tugboats to tankers."

Bryan Hartin, Iridium's executive vice president, sales and marketing, noted that his company was "enthusiastic about the expansion of our partnership with KVH."

"We recognise the market's desire for an affordable turnkey complementary component for VSAT service and have collaborated with KVH to deliver a solution that eliminates coverage gaps and offers an alternative to the high prices of competing maritime satellite networks," he said.

KVH has recently extended its existing network by doubling the capacity available to mini-VSAT Broadband customers in Brazil and Africa.

"Brazil and Africa are key regions for our customer base, as they are important for both the shipping and oil and gas industries," said Mr Bruun.

The extended network will feature Variable Coding, Spreading, and Modulation (VCSM) technology provided by ViaSat, KVH's network partner.

"The new VCSM technology enables us to handle transmissions much more efficiently, increasing the amount of data that our network can carry, which is important for both safety and business operations onboard," said Mr Bruun.

"We can upgrade the software for our large base of fielded TracPhone V-series systems over the air."

KVH had carried out similar capacity upgrades in the Caribbean and EMEA regions in late 2012.

Rather than investing in its own satellites, KVH leases satellite capacity from companies such as Intelsat, Eutelsat, SES, and SkyPerfect JSAT.

Currently, its mini-VSAT Broadband network uses 17 leased transponders to cover the globe.

The package includes Iridium Pilot with the KVH mini-VSAT system

Buzz Marine launches the Hubba

www.buzzconnect.co.uk/marine

Buzz Marine has launched a new device, a free-standing mobile unit which, like its existing HubbaX unit, provides on-board 3G broadband reception up to 20 miles offshore.

Unlike the water-resistant HubbaX, the new Hubba cannot be installed on deck. Instead, the free-standing unit can be located inside to provide a Wi-Fi broadband capabilities.

The Hubba provides 3G connectivity near shore

The Hubba uses aerial technology and 3G networks via an internal SIM card. It can provide broadband connection up to 20 miles offshore, continually seeking the best signal.

Buzz Marine says that it has typical download speeds of 7 Mbps and uploads of 1Mbps. The unit is powered by the vessel's 12v system or a standard mains power point with the 12v DC powerpack.

Steve Smith, managing director of Buzz Marine, said: "Once in position there is no set up required, just plug in and the unit will search and lock on to the best available signal."

"With four built-in antennae it is four times more powerful than a built-in laptop or iPad connection. It's simple to add on the telephony service too, ensuring the connection is made the most of."

Buzz Marine says that the Hubba range is designed to take advantage of upgraded transmitters as they come online. Prices start from £325 plus VAT.

Royal Caribbean completes VSAT roll-out

www.harriscaprock.com

Harris CapRock Communications has announced that it has completed the installation of satcom systems on board 33 vessels for Royal Caribbean Cruises. The solution combines Ku-band and C-band connectivity.

Harris was awarded a contract in April 2012 to provide VSAT for the Royal Caribbean International, Celebrity Cruises and Azamara Club Cruises brands.

In nine months, the company de-installed and installed more than 120 large antenna systems onboard the fleet, while equipping each ship with its SpaceTrack stabilised antenna systems.

Bill Martin, vice president and chief information officer of Royal Caribbean Cruises, said: "The new high-performing communication service deployed across our fleet enables innovative information technology solutions that improve both the crew and the guest experience while also improving our operational efficiencies."

"Harris CapRock's capability as a world-class communications systems integrator makes this possible through seamless service delivery backed by 24/7 monitoring to ensure communications are always on."

Comms widgets for CrewXchange

http://crew.singtel.com/CrewXchange

SingTel, in collaboration with the Maritime and Port Authority (MPA) of Singapore, has developed 46 widgets specially designed for its CrewXchange portal to help seafarers plan their stay in Singapore.

Fully funded by the MPA, the widgets provide information such as important notices, accommodation reservation and a calendar of activities so crew members may plan ahead before arriving on Singapore shores.

CrewXchange@SingTel is a hub which lets seafarers access news feeds, social media, web mail, instant messaging and e-learning content.

One of its widgets, VoiceLink, allows them to talk with their relatives and friends. SingTel claims that it features "the industry's lowest proprietary CODEC of 2.15 kbps" bandwidth and therefore uses three times less bandwidth than some other Voice over IP applications.

Crew members can use text and voice chat with the system, and can also select from three call quality options to better control their call expenses.

While using VoiceLink, seafarers can also surf Facebook, send e-greetings and read news on CrewXchange@SingTel's site, according to the Singaporean telecommunications company.

CrewXchange@SingTel is a free service and crew members can invite their friends and family to become members of the portal.

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All-you-can-eat broadband for Vale

www.inmarsat.com

Inmarsat has announced that Beltship Management Limited (BML) has deployed its FleetBroadband Unlimited service across all six of the bulk carriers it manages for Vale, a Brazil-based mining company.

Beltship required a large data allowance that would cover both the operational needs of the vessels and use by crew during the three month round-trip between Brazil and China, says the London-based satellite company.

The 'all-you-can-eat' service was installed by Inmarsat partner AND Group and based around AND Group's IPSignature communications software, a platform that enables access to web-based applications and provides control and visibility of each vessel's communications and data usage.

Shore-based ship managers can supervise settings and the access given to business and crew users on board a vessel via the AND Web Portal. For example, ship managers can set up a whitelist and blacklist to prevent users from visiting inappropriate websites.

Today, all six Vale vessels managed by Beltship feature Crew Internet Cafés. The café consists of a network of PCs, preconfigured with IPSignature for access to applications such as web browsing, e-mail, SMS and instant messaging.

A mobile browser is used for web surfing to ensure that data is loaded faster than using full desktop versions.

The vessels will access the Inmarsat global mobile satellite communications services through a mix of Thrane SAILOR FB500 and Furuno FB500 terminals.

"Our vessels spend many weeks crossing the ocean, so robust, reliable communications with good throughput rates is of high importance," says Marjolijn van Tiel, purchasing manager at Beltship.

"We had evaluated many options but, following discussions with AND Group, we realised that the combined support solution they were offering including their IPSignature software and FleetBroadband Unlimited would answer all our requirements."

"We are already seeing the benefits. Now that the main bridge PC has unlimited internet access, it is easier for our Chief Engineers and Captains to receive real-time information to support operational decision-making."

For example, Ms van Tiel notes that the shore offices can now send links with weather information or routing data to ships wherever they are in the world, or, in case of emergencies like a change of port, the company can forward links to the relevant charts and port information.

"This was previously impossible due to size limitations of e-mail traffic," she adds.

AND says that crew morale also played an important role in the choice of this particular system.

"With an average of 23 officers and crew per vessel, the cost of providing free access to the internet during a voyage lasting months was a key consideration for Beltship," said Anna Hilliard, sales manager at AND Group.

"FleetBroadband Unlimited addressed this from the outset, enabling us to offer enhanced crew services whilst being able to guarantee fixed costs, regardless of how much time they spent online."

Vale vessels managed by Beltship all feature crew internet cafes. Photo: Beltship

1,000 to Infinity

www.navarino.gr
www.infinitysolution.eu

Navarino says that 1,000 vessels are now equipped with Infinity, its bandwidth optimisation and management service.

Launched in 2011, Infinity is designed to optimise satellite network connections, prioritising connections depending on what network is available, and provides shipping companies with tools to control and manage their bandwidth. The system can be used across all satellite networks.

Navarino explains that each quarter a new version of Infinity software is pushed free of charge to all vessels using the service, containing new features which are developed based on customer feedback and requests.

Features of the service include a variety of web surfing optimisation tools, user and policy management, content filtering and anti-virus.

UN plea for mobile broadband

www.broadbandcommission.org

The Broadband Commission for Digital Development has urged the United Nations to ensure that broadband features prominently in its post-2015 Development Agenda, and has explicitly recognised connectivity at sea as an important area of focus.

The Commission has written an open letter to the panel charged with advising the UN on the global development framework beyond 2015, the target date for the Millennium Development Goals (MDGs), calling for recognition of "the power and promise of broadband applications and services to expand people's horizons and opportunities."

The letter describes "broadband, including mobile broadband, (as) fundamental to (ensuring) connectivity at sea and in the air, as well as on land in remote areas."

It goes on to note that this kind of connectivity access will, in the future, be critical in facilitating "emergency and humanitarian communications, distance learning, and electronic commerce."

Launched by UNESCO and the International Telecommunication Union, the Broadband Commission comprises government officials, industry leaders, representatives of international agencies, and organisations concerned with development.

Since 2000, access to Information and Communication Technologies (ICTs) has exploded, notes the Commission, adding that today there are 6 billion mobile subscriptions, with 75 per cent of the world's population having access to a mobile.

"Mobile continues to transform the lives of ordinary people and children by enabling them to make life-saving emergency calls, learn numeracy and literacy skills, consult news and weather services, source higher prices for their produce, and conduct business transactions," it says.

Imtech introduces IPTV

www.imtech.eu/marineoffshore

Imtech Marine reports that it has developed a low cost IPTV solution specifically suitable for merchant and special vessels.

The IPTV system is based on Internet Protocol Television (IPTV) and offers interactive multimedia services such as television, video, audio, text and graphics delivered over IP-based networks. The system eliminates the need for a cable TV infrastructure and works via a plug-and-play IP network. Content will include movies, TV series, music, news and sports.

The system also offers further functionality as a tailored infotainment system, to communicate information about the company, to describe safety procedures and to educate the crew about relevant topics. The system can be integrated with Imtech Marine's Global VSAT solution, to facilitate remote access, trouble-shooting and maintenance.

Imtech says that the system was developed in close collaboration with Belgian dredging company Jan De Nul, which has installed IPTV on its entire fleet.

"Crew entertainment for Jan De Nul is an important part of crew welfare. The Jan De Nul crew must feel at home while on board," says Ruben De Lille of Jan De Nul.

"We offer services that can be compared to a four star hotel. Apart from good food in the messroom, a fully equipped gymnasium and a lounge bar, each cabin is provided with modern devices: free internet access, a television set with DVD player and an Entertainment system that allows the crew to watch both satellite and terrestrial TV channels, listen to the radio or music on demand and to watch video-on-demand movies."

"Our crew is on duty 12 hours a day, for six weeks at a time. After work it is important for them to have the possibility to relax. Our Entertainment system plays an important role in this. Even in the gymnasium we have installed some Entertainment stations so our crew can relax both their body and mind."

Imtech notes that its IPTV solution feeds the system on a regular basis with recently released movies, via commercial distribution rights agreements for Video On Demand/IPTV with Columbia Pictures, 20th Century Fox, Universal, DreamWorks, Warner Bros and Paramount Studios, with further agreements to be added shortly. Imtech has also acquired licences from other content producers, such as the BBC.

The crew can choose a channel in their cabin and select TV in different languages or subtitles. They choose movies from a catalogue containing all the movies added to the server on board - downloading from the internet is not necessary.

Imtech says that there is a monthly fee for the service, charged to the ship operator, rather than paying per movie.

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Inmarsat maritime revenue growth after price changes

www.inmarsat.com

In spite of the uproar over changes to its pricing policy in 2012, which saw Pay As You Go users hit with significant increases, Inmarsat's first quarterly results report for 2013 had shown little sign of any negative impact on the business – with maritime revenues up compared with this time last year

'I think people are appreciating more now that the nature of the pricing changes that we made weren't all about pricing increases' – Rupert Pearce, Inmarsat

Inmarsat has reported an increase of almost nine per cent in maritime revenues for the first quarter of 2013, compared with the same period last year, partly due to the price rises it has introduced on its FleetBroadband and E&E services.

These results seem to suggest that fall-out from the furore over the price changes that came into effect in May 2012 has been limited and has not resulted in high levels of customer churn.

"I think people are appreciating more now that the nature of the pricing changes that we made weren't all about pricing increases at all, in fact, as we've said before," said Inmarsat CEO Rupert Pearce, during the results conference call.

"The creation and enrichment to the different packages that we've created give people better value per megabyte than ever before and (are) creating environments in which they can control their costs, grab that efficiency and start to deploy solutions and applications over our network in a novel way that delivers real value to their enterprise."

"I think that bargain, that way of buying that facilitates that, is well understood now and we're seeing very strong growth and movement of our maritime revenues proportionally into these packages in a very pronounced way - which I think is good for the customer, good for our channel, and good for the resiliency of our own revenues and EBITDA as well."

The company said that during the quarter it added 1,924 FleetBroadband subscribers, including continued migration of customers to FleetBroadband from certain older services.

The increase in maritime revenue was attributable to the continuing general growth in data usage across the industry, with the approximately 15 per cent growth in data offsetting a 14 per cent decrease in voice revenues year-on-year.

The number of users of the company's XpressLink hybrid Ku-band/ FleetBroadband package reached 1,229, with 85 net additions this quarter.

The XpressLink service is provided via the former Ship Equip part of the business, which had reported reaching 1,000 orders for its VSAT service in 2010 before it was acquired by Inmarsat in the first half of 2011.

Interestingly, Mr Pearce noted that the company has been adding capacity to its VSAT network - which presumably means making payments to rival satellite operators with existing Ku-band capacity.

Mr Pearce said that while this "impacts margin" he sees it as a measure which is "both temporary and (a) price worth paying" to strengthen Inmarsat's position in the VSAT market.

Despite this growth in maritime revenue however, overall Inmarsat PLC reported a decrease in revenue for the quarter of approximately 11 per cent compared with last year, and there does seem to have been some unrest among investors with regard to executive pay at the company.

A number of reports in the financial press in London have described a "shareholder revolt" at Inmarsat's May 2 annual general meeting (AGM), as almost 36 per cent of investors voted against a suggested pay package for company chairman and former CEO Andrew Sukawaty.

Intelsat shares start trading

www.intelsat.com

Intelsat has begun its initial public offering (IPO) of 19,323,672 common shares on the New York Stock Exchange, priced at $18.00 per share – lower than the original price mentioned in its recent preliminary prospectuses.

Intelsat has stated that it expects the total net proceeds from the offerings, after deducting the underwriting discounts, commissions and expenses, to be approximately $471.7 million.

The satellite operator initially began distributing its preliminary prospectuses in the hope that it could raise as much as $711 million by offering 21,739,130 common shares at an initial public offering price between $21.00 and $25.00.

Even that $711 million total represented a scaled back version of Intelsat's earlier IPO plans, totalling less than half of what was indicated by a preliminary SEC filing of a Registration Statement by the company on May 18th 2012, which estimated a Proposed Maximum Aggregate Offering Price of $1.75 billion.

Money raised by the offering will be used to reduce the company's liabilities, with Intelsat confirming in the Registration Statement it filed with the US Securities and Exchange Commission (SEC) on April 2nd that it intends "to use substantially all of the net proceeds from the offerings to repay, redeem, retire or repurchase a portion of our outstanding indebtedness."

The company is listing its common shares on the NYSE under the symbol 'I'.

"Given all that the market has had to digest (in recent weeks) – from the unfortunate events in Boston to the poor GDP in China to political unrest – we are extremely pleased to have completed our offering and open our listing on the NYSE," Intelsat told *Digital Ship*.

"We view this as the first step in a long journey. The IPO will increase our flexibility and start a positive cycle that will reduce our leverage and interest costs."

"This builds value for investors over the long run, even as we continue to deploy our next generation satellite fleet that will provide mission critical infrastructure for our customers."

Intelsat has been involved in an extensive fleet investment programme, at a cost of approximately $3.7 billion, since 2008, which was substantially completed during 2012.

This does not include the EpicNG platform that will be part of the company's next generation of development.

Established in 1964 as the first commercial satellite services provider, Intelsat has a fleet of over 50 satellites and posted total revenues of approximately $2.6 billion in 2012. The company's satellite services are used by a wide range of maritime VSAT providers to offer Ku-band and C-band coverage.

Intelsat shares are now trading on the New York Stock Exchange

NSSLGlobal appointed GX reseller

www.nsslglobal.com
www.inmarsat.com

NSSLGlobal has been appointed as a value-added reseller (VAR) for Global Xpress (GX), Inmarsat's forthcoming Ka-band network.

Other currently contracted GX VARs include Navarino, SingTel, Telemar, GMPCS, and Imtech Marine.

Inmarsat expects to launch the first three of its GX satellites by the close of 2013, and to complete the full constellation by the end of 2014.

The agreement it has signed with Inmarsat will see UK-based service provider NSSLGlobal become a value-added reseller of Global Xpress for the maritime market.

"In building our VAR network for Global Xpress, NSSLGlobal's understanding of our business, combined with their decades of experience serving the maritime industry, makes them an excellent partner for Inmarsat's revolutionary GX service," said Frank Coles, president, Inmarsat Maritime.

"We continue to make strong progress in building our global channel network in advance of the launch of our first Ka-band satellite at the end of this year."

Sally-Anne Ray, chief operating officer, NSSLGlobal, added that her company is "delighted to have been chosen as a Global Xpress launch partner."

"VSAT communications has traditionally been a luxury in the maritime market and consequently only gained traction with customers who have the capital expenditure, space and data requirements to accommodate an always-on VSAT system," she said.

"Global Xpress represents the next generation of communication for the whole maritime industry, as it provides a cost-effective broadband solution that supports the rapidly growing bandwidth demands of operational and crew welfare applications."

In related news, NSSLGlobal has opened a new office in Singapore, with the aim of supporting its key clients at a regional level. Existing NSSL clients operating in Asia include Teekay Marine, BW Fleet Management, MTM Ship Management and AET Tankers.

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Hartmann fleet moves to VSAT

German shipping company Hartmann Reederei has agreed a contract to roll out Ku-band VSAT services to all of its ships, a deal which will also include the implementation of a dedicated communications management system on each vessel

Marlink has landed a contract with German ship operator Hartmann Reederei to supply standardised Ku-band VSAT services to its 74-vessel fleet.

Headquartered in Leer, Hartmann operates a diversified fleet comprised of gas tankers, container vessels, multi-purpose and bulk carriers, which had previously been using Inmarsat E&E services.

The company has signed a contract for services based on Marlink's WaveCall Ku-band and Astrium Services' XChange solutions for an initial period of three years.

Marlink notes that the XChange unit will be the central point for each vessel's network, allowing for administration of crew communications through pre-paid profiles. Ship owners can define individually how much crew will be charged for their usage of voice and data.

The bandwidth allowance packages under the deal come in increments of 5, 10, 20 and 30 GB.

"Crew welfare and retention are the primary drivers for upgrading communications across our fleet," says Wilko Büscher, IT fleet manager at Hartmann.

"The new services enable us to offer very low-cost connectivity to crew members, but a by-product is that we will experience more available bandwidth and faster speeds to boost operational and logistics efficiency."

Each vessel will have an 80cm VSAT antenna. Marlink has trained Hartmann engineers to install it by following a standardised process.

"Our solution for Hartmann is extremely competitive," says Tore Morten Olsen, head of Astrium Services - Maritime.

"We have been able to develop a solution that offers more than enough bandwidth for both crew and operations, at costs that would only provide a fraction of the bandwidth on competing services. XChange allows Hartmann to keep full control of communication usage, either on board or from shore, regardless of vessel type or location."

"If requirements increase over time, we have larger bandwidth packages to meet increased consumption, additionally we offer an upgrade path to WaveCall Premium, which is typically used when more business critical needs define the ship owner's usage."

BYOD upgrades

The XChange unit to be included in this package has been the subject of a recent upgrade by Astrium, with a newly released software version allowing crews to use their own smartphones on board.

Following the upgrade users will be able to connect their own devices to a vessel's network over Wi-Fi, to access e-mail, the internet and social media sites.

Astrium says that this development mirrors the growth of 'Bring Your Own Device' (BYOD) policies on land, where many organisations now accept user-owned smartphones, tablets and laptops on corporate networks.

"With XChange v2.3, BYOD is now very easy to implement at sea," explains Mr Olsen.

"The new software version introduces a specially created smart device interface, which offers easy online access, real time cost control, voice and VoIP calling. In addition to meeting seafarer requirements for using their own devices on board, the new interface also secures privacy for personal and operational communication at sea."

74 ships in the Hartmann Reederei fleet will implement Ku-band VSAT systems. Photo: World24

The Astrium XChange platform will be used to manage all vessel communications

Personal internet usage can be managed by setting daily access limits for any user group. In order to ensure security whilst allowing access to crew and passenger devices, XChange v2.3 provides network control via white/black listing of network clients for internet access. It also clearly separates the crew or passenger network from the corporate network.

Astrium says that with this latest version, IT managers now have permanent remote access, which allows them to control the network with no on board action required. They can also access any communication device on the network, even while offline.

Astrium says that new VoIP technology has also been included in XChange to enable bandwidth savings of over 50 per cent, and that the platform has added compatibility with Furuno Felcom satellite terminals, unavailable with the previous versions.

XChange v2.3 is available free of charge as a firmware update, through a local file or via the embedded over-the-air update feature.

In addition to this XChange update, Astrium has also upgraded its SkyFile Mail software, which is now available for all types of FleetBroadband terminals and compatible with tablets and smartphones.

SkyFile Mail v8.25 allows for the anti-virus to be updated over the air and features enhanced I4 device control, which, with the addition of JRC and Furuno connection capabilities, is now available for all types of FleetBroadband terminal.

This feature allows users to start the FleetBroadband connection and dial in directly from SkyFile Mail, so there is no need to keep the IP session open continuously, which reduces the risk of unwanted data usage.

The master can now set up three different types of connection, for instance with FleetBroadband as primary and other systems as back-ups. If he needs to switch to a back-up solution, SkyFile will alert him that it is not using the primary connection in case he needs to be aware that he might be using a more costly per MB service.

With the growing requirement for seafarers to use their own devices on board in line with the BYOD trend mentioned earlier, the new version of SkyFile Mail has introduced tablet and smartphone compatibility. Crew and officers can now send and receive e-mail using their SkyFile account over the vessel's Wi-Fi network.

In the previous version, the anti-virus also required manual updates every three months. Now, a monthly automatic notification prompts the master to update the anti-virus software over the air.

"Because it is designed around the needs of maritime users, SkyFile Mail is an important tool for a large number of vessels using Astrium Services connectivity," said Jean-Marc Duc, senior product manager messaging solutions.

"Development is on-going in line with our commitment to adding value to our connectivity services, so we are pleased to be able to enable these cost-savings and operational improvements in the latest version of SkyFile Mail." DS

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The future of maritime satcoms

Digital Ship recently organised a round table discussion session in Copenhagen, bringing together a panel of four vessel operators, two communications technology suppliers and one market forecaster to discuss the future development of satellite communications in the shipping industry. Amongst a wide range of subjects the debate covered the potential of high throughput satellites, the growth of VSAT, and where L-band may sit in the new maritime market

Digital Ship's 2013 round table discussion, titled 'The Future of Maritime Satellite Communications' and hosted by Cobham SATCOM at the former Thrane & Thrane headquarters in Copenhagen, Denmark, brought together a panel of seven experts with decades of experience in the field of vessel operations and the application of technology in the shipping environment.

The goal of the discussion was to examine some of the current, emerging and planned future communications technologies on offer to the maritime market, and to gather opinions on how the development of these systems might change the operational environment in coming years.

Digital Ship posed a number of specific questions to the panel (identified in the table above right), starting with a look the current market situation for maritime communications, and how that starting point will influence the new generation of emerging technologies.

***Digital Ship* – Have we yet reached a stage where we could say that broadband is something that's the norm in maritime, or are we still very much a 'dial-up' industry? What are the major factors that are driving implementation of broadband, but also hindering the implementation of higher speed systems?**

CI: It's a very interesting time at the moment, there are really a lot of new technologies arriving on the scene, and I think we'll be talking about those today, and also where we've been as well.

There have been more fundamental new changes happening than in the last 10 or 12 years in satellite communications than ever before. The pace of change has been unprecedented. But still, I have to bring us down to earth a little bit – yes, on the ship operator side you will be very much aware of the reality of it, but much of the discussion could be said to be aspirational, so far as the broader commercial market is concerned at the moment.

There is really a major bed of the market which is unaddressed in terms of broadband speeds, and the most common implementations on most deep sea vessels are not broadband at the moment. That's something that as a manufacturer I represent as well.

There's a broad range of systems implemented on ships, and really the most common of those are not broadband at the moment. So, for example, at Cobham SATCOM we have manufactured more than 120,000 Inmarsat-Cs.

Inmarsat-C is absolutely the complete opposite of a broadband communication system. It's operating at less than one kilobit, 0.6 kilobits, and there are 150,000 of these that are actually in commission, according to Inmarsat.

These only offer minimal data capability, and yet there are key advantages of those systems. The fact that these are text only means that you've got no advertising, no viruses, the information is completely concise, you don't have spam, and you don't have e-mail overload. The system is extremely dependable.

Who's who: The Panel

The panel consisted of (abbreviations in brackets):

(CI) - **Chris Insall,** manager commercial programmes, **Cobham SATCOM**

(PF) - **Peter Faurhøj,** asst gen manager navigation & communication systems, **Maersk Supply Service**

(PS) - **Pelle Stroby,** senior category manager Maersk procurement, **A. P. Møller - Maersk**

(AR) - **Allan Rasmussen,** vice president fleet and newbuilding support, **TORM**

(JC) - **James Collett,** director of mobility services, **Intelsat**

(WL) - **Wei Li,** senior consultant, **Euroconsult**

(SK) - **Søren Krarup-Jensen,** general manager crew (marine HR), **Eitzen Chemical**

SK: Do you know how many of these actually are used or they are just standing there?

CI: I think a very high proportion of them are used a small amount. I don't know the official Inmarsat figures, but you will find that their volume and turnover is still in the tens of millions of dollars for Inmarsat-C traffic, and none of that is safety, they're not allowed to charge for any safety traffic.

But that is a significant amount of traffic, that is basically SafetyNET, FleetNET traffic, and general messaging traffic. So that's just really to set the scene, actually it's the system which is most widely implemented, it's more than 90 per cent of vessels, maybe 95 per cent of vessels. In the deep sea SOLAS area, it's mandatory for SOLAS A3 to have Inmarsat-C installed.

I just mention that because we have tremendous focus on the amazing infrastructure which is being put up into space for broadband communications, but in actual fact what people are using is very broad. In terms of dial-up, I took a note, there are more than 30,000 Fleet systems, which are still commissioned, and we've manufactured 25,000 Fleet terminals. You could probably define those as more dial-up than broadband.

Yet, at the same time we're seeing that the take up of broadband is running at an unprecedented rate. There are still though potentially 30,000 deep sea vessels which don't have any kind of broadband communication, FleetBroadband or VSAT systems installed.

*The panel – clockwise from left: James Collett, **Intelsat**; Wei Li, **Euroconsult**; Søren Krarup-Jensen, **Eitzen Chemical**; Rob O'Dwyer, **Digital Ship**; Chris Insall, **Cobham SATCOM**; Peter Faurhøj, **Maersk Supply Service**, Pelle Stroby, **A. P. Møller – Maersk**; Allan Rasmussen, **TORM***

***Digital Ship* – Are the antennas too expensive? Because presumably if you're using Inmarsat-C or Fleet to do your communications it's cheaper per megabyte to do it with FleetBroadband, for instance?**

CI: I think there's a whole range of factors. If you're asking what's driving or hindering the implementation – I don't think that hardware cost is the be-all and end-all. Certainly the part of the cycle that the industry is in right now is not conducive to taking on major new technologies that are not mandatory from a regulatory perspective.

So maybe we would expect that the industry will be swinging up over the next couple of years. It has been unprecedented, the last couple of years, in terms of the trading conditions, in terms of the cargo rates and the futures rates, these have been at an all-time low. We would expect the market conditions to pick up.

I don't believe for one thing that they're particularly low, the broadband take up rates, but certainly they will get even stronger in the next couple of years.

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In terms of what is driving the market, the requirement for data, the demand for bandwidth is unstoppable – globally, outside of any kind of individual vertical market. The uptake of smartphones, for example, I've seen industry estimates of the number of smartphones in service currently at around a billion, and that we're going to have in two or three years another two or three billion. I've even seen numbers from Cisco saying higher than that.

That fuels the demand to access data from the end user perspective, and in our industry that's most visible in something like passenger, when people go on board a vessel with their devices they need connectivity. An average family brings with them anything up to 10 devices, but a family of four will bring at least four or five devices with them.

That demand is reflected across the base in terms of crew and other staff on a vessel; the captain, first engineer, the chief engineer, the chief officer – these people also have an expectation now of data. So that, above and beyond anything else, the demand for data is the key driver, as I see it.

In terms of what's hindering the industry, it's probably mostly where we are in the industry cycle. There is a double whammy of cargo rates, and also the effect of high bunker costs, so we have an unprecedented situation at the moment. That does affect purchasing conditions.

***Digital Ship* – Peter what's your view on this? You're involved in making these decisions.**

PF: I think it depends on the type of vessels, and the regions as well. Cruise vessels were of course quite fast to adopt broadband on board, and the supply vessels and tanker vessels also did quite a lot of installations.

Surprisingly enough container vessels have been very slow to adapt. We did it for crew retention, and of course business reasons but that was not the main driver.

Cruise vessels, they do it for their customers obviously, but I think supply vessels and our supply companies and tanker companies have been driven by business.

There is also a great focus on crew retention. It's expensive to keep the certificate for these crew members up to date, it's very expensive to educate a crew member for supply vessels and tanker vessels. So I think there's been a certain amount of crew retention as a driver for implementing broadband on these types of vessels.

***Digital Ship* – If you take the crew element out of it, would you run the business pretty much the same way you do now with a Fleet system?**

PF: I think that we would have kept the dial-up version a little bit longer, maybe not until today but a little longer. Actually we did do that, because in the beginning the FleetBroadband terminals and VSAT terminals for our vessels were purely for the crew and for the charterers, it was a demand from them.

We had a lot of complaints from crew members saying that 'most supply vessels have it, we want it too'. So we had to do this back in 2007, because otherwise there was a risk that they would leave the company and go where they could have the free internet and free telephone calls or cheap telephone calls.

***Digital Ship* – So would you say that in particular markets and regions this is the norm, basically in the markets where you're working?**

PF: I think, especially in the beginning, it was for supply vessels, and it was the Norwegians who were the first ones to adopt broadband. Not on all vessels, but on the larger vessels they adopted this quite fast.

I've seen regions, even in Europe, who have been very slow in adopting broadband. When you go to, for instance, *Digital Ship* in Hamburg and you talk to some of the German owners, they are still in the test phase of trying a FleetBroadband or a VSAT, and they have done it for years. Some have been very slow adopting broadband for their vessels.

***Digital Ship* – From what Peter is saying it sounds like a lot of this is reactive; it's a view that the conditions are such that I need to have broadband to keep my crew – would you agree Soren?**

SK: I think in Maersk one of the biggest pressures was in the supply vessels. All the offshore industry had it, and the charters were the same. The crew were very

'The captain, first engineer, the chief engineer, the chief officer – these people also have an expectation now of data' – Chris Insall, Cobham SATCOM

much together with the charterers. So that started in the offshore industry, and then everybody else had to follow because it was the same people we are trying to recruit.

In Eitzen Chemical we got the first FleetBroadband installed in 2011, and that was purely due to retention. Because in today's modern world Facebook and e-mail is vital if we want to communicate with our social network.

If you cannot provide Facebook, and I don't think we can even do that today on all our vessels, even though we said that we have to, the young guys we want to recruit, the ones who can go fast up through their careers, they will not join a shipping company if they cannot just log on to Facebook or have free e-mailing or chatting functions together with their wife and families.

They need to get a picture when the child has had a birthday. All these are very important for them. Even though all these are put up for crew retention, and there is no return of investment on the money you are spending changing to these systems, I think looking at our satellite communication costs they are going down, especially on the vessels trading very frequently under VSAT coverage, because they more or less have halved the phone communication costs.

The vessels use Skype and Microsoft Lync to communicate with the superintendents. So there is also afterwards a cost benefit on it, but I think it's driven certainly by crew retention to begin with.

***Digital Ship* – Pelle, you're involved in buying for the different sectors that Maersk is involved in, so you see the different perspectives we're talking about.**

PS: If we are looking at Maersk, all deep sea vessels have had broadband for the last two years. Maersk Line was the last one coming on to this, and that was purely for business needs. That was a business case that was made that required broadband.

You can say 95 per cent of the usage was crew welfare, but we could also make a business case which could pay for FleetBroadband, and that has always been the problem – finding one single business case which can justify the investment. But we did it purely on fuel reduction, and on faster communication of time of arrival and time of departure.

***Digital Ship* – When it was installed for crew retention purposes on some types of ships, was the business use after having that system installed helpful in proving your other business cases?**

PS: It's different, because on supply vessels and tanker vessels the system was implemented as crew welfare, and that also means that for many years you had to deliver all the FleetBroadband systems as crew welfare. So you could not, as such, say 'I will take a part of it for business use'.

It's only in the last year or so where we are starting running business communication and applications via that one broadband system. For Maersk Line that was a lesson learnt, from the beginning it was communicated that this is a business system, this system is implemented because of business, and the crew will get whatever is left.

If 99 per cent is left then they will get 99 per cent, but they cannot require or demand any specific part of that channel.

***Digital Ship* – You mentioned fuel, has that been a real game changer, in that the huge increases in the cost of fuel have totally changed the drivers for communications?**

PS: If you can take fuel into a business case you can always make a positive business case. That has nothing to do with broadband or communication, that is just a small part of it.

It was simply to get information in a more timely manner, and you could do that on Inmarsat-C as well. But Maersk Line was lagging two years behind the rest of the business unit, and of course there were a lot of complaints, like Peter said, it's the same people saying 'on that Maersk vessel I will get FleetBroadband, on another Maersk vessel I get nothing'.

We needed FleetBroadband, and now we have the possibility of making a business case. Again, Maersk Line is the first one to go out of that agreement again, and the second investment, where VSAT is the prime communication platform, that's a pure business requirement. No crew welfare is included in that business case, it's purely on business communication.

***Digital Ship* – What is the number one priority on the business side for the communications?**

PS: To sell information to customers. There can be a spin off to crew welfare and other things, but the whole investment is coloured by one business case on value added services to customers.

***Digital Ship* – Is that one particular type of information, or is there a variety of data being generated that needs to be shared?**

PS: It's one particular kind of information.

***Digital Ship* – Allan, would you like to share your experiences in this area?**

AR: Five or six years ago, when the market was doing a lot better, it was decided at that time that TORM would do something for crew welfare.

The TORM foundation donated an amount to what are called the crew ships' club, and actually the ships' club purchased VSAT antennas for a number of the ships. Not all of our ships have been equipped with VSAT antennas, but a number of them were.

At that time a contract was made to purchase C-band antennas, they are very big antennas at 2.5 metres, a very big dome to have on the monkey island – it takes up some space, I can tell you.

So VSAT communication was provided for crew welfare at that time, and TORM were first movers in that area. However things have changed, the market is tougher now, and also a lot of technology development has happened in recent years. So last year we finalised a new agreement and have a new strategy for the communication going forward.

We see also now the VSAT bandwidth we have is lagging very much behind. For the agreement we have right now with our current supplier (before moving to Inmarsat's XpressLink) we have 256 kbps, however that can be shared with up to 10 vessels. We also have experience that the crew purchase their own routers, and install them on each deck in order to have wireless networks for their own private computers.

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We do not recommend that because it will slow down the network on board – can you imagine having 10 or 15 private computers connected to a wireless network with a bandwidth speed that can be shared with up to 10 vessels? The bandwidth left to each computer is next to nothing. But that is the case we have right now.

PF: Actually I have seen, on a vessel with 60 crew members and chartered people, they had around 160 users online.

***Digital Ship* – On one vessel?**

PF: There were smartphones, iPads, computers. Some of them had two computers.

AR: We have really tried to limit it to the onboard network, the LAN network on board, but it's impossible because people go and buy routers and put them up and so on – and then they will complain about the speed, of course.

We realised that the C-band coverage, even though it's supposed to be covering a large area, the connectivity was not always as we would have hoped or had been promised it to be. So as I said, last year I, together with our procurement team, invited some other players in the market to bid on this, and we have set a new strategy for our communication on board.

We have VSAT, or FleetBroadband, or Fleet or Sat B or Sat C – we have a huge variety of systems on board our vessels. But we have now made an agreement with Inmarsat that we will have their XpressLink solution with Ku-band VSAT antennas and a FleetBroadband 500 as backup on all vessels. This is what we are aiming for now.

***Digital Ship* – Does this solve your problem though, of too many people on a small amount of bandwidth?**

AR: It will not solve that problem, but we will have a higher speed now, we will have 128 kpbs committed per vessel, and that will burst up to 512 kbps or something like that. We also have in that agreement this upgrade to the Ka-band with double speeds after a couple of years, bursting up to one megabit.

This is a lease agreement, so we will not purchase our own equipment as we have done in the past. We have realised that the value of that, when we have sold a couple of our vessels last year, the value of that equipment is next to nothing. Of course we have to tell the ships' clubs that, and they don't understand us.

So this is what we have chosen as a strategy. The agreement we made five years ago was supplier driven, it was the supplier telling us what you can get. What we did last year is we went in looking at what TORM wants, what our strategy will be going forward, and defined that. Then we had these suppliers bidding in on our requirements.

We also have a defined SLA (service level agreement) now, which we didn't have in the old contract. There was no SLA, it was based on best effort, which can mean a lot of things. But now we have an SLA, and Inmarsat guarantees 99.5 per cent uptime on the combined solution, and we have flat rate unlimited data.

***Digital Ship* – Where does the Ka-band option sit into that? Will you wait to see if that's proven, or as soon as that's launched do you get switched over to Ka-band? How does it work, the Global Xpress element of the deal?**

AR: When they have their system ready I believe we will run a couple of test vessels and see how it works out before we go 'all in' on the remaining fleet. That is usually how we do it. We have also done it when we are converting to Inmarsat now, because some of the old C-band antennas from our previous contract will need to be converted into Ku-band antennas.

We'll use the same dome, but I think the BUC (block up converter) or some equivalent needs to be changed in order to provide a signal.

We will do a couple of test vessels to see how the installation goes, is it running smoothly, are there any difficulties or problems experienced after the conversion, and so on. We will run for, say, one month, and if there are any problems we'll see if they can be rectified. If there aren't any problems at all then we're all in.

***Digital Ship* – Will you have the same SLA on the Ka-band that you have currently?**

AR: Yes, that will be under the same SLA.

***Digital Ship* – James, you're providing services to a lot of the new maritime VSAT providers we've had over the last decade – what's your view on the rise of VSAT and broadband within the industry?**

JC: I think if you look at how far broadband has penetrated in commercial shipping today, I would say it's been pretty limited, which from our perspective is very positive, because we see plenty of growth ahead of us.

Arguably there are a lot of technically capable terminals out there today that could do broadband, although I don't think they would meet the ITU definition for broadband, which isn't 432 kbps, it's higher than that.

But if you look at those 32,000 FleetBroadband terminals that are out there today, only a very few of them I would say are commercially enabled for broadband. They have price packages associated with them, which mean that the users use them in a very constrained way.

I think when you talk about the market being 'broadband enabled', we mean 'Is there an always-on, fixed-fee, all-you-can-eat type subscription in place?' That's what I call a broadband connection. That's what most people accept today as broadband connectivity.

There may be some fair use policy associated with it. There may be some type of traffic management, but it is pretty much that you can do what you want and you can use it in the same way as you can a terrestrial broadband connection.

So I think in that respect, we've still got a long way to go, and I would argue that from both a commercial and a technical perspective, in terms of getting that broadband connection, then VSAT is the way people are moving. I think that market is increasingly gaining momentum for a variety of reasons.

In the past, Ku-band coverage was very poor, and that was probably part of TORM's decision to go for C-band. But operators like ourselves have been investing in providing coverage over the oceans where that hasn't existed in the past.

To your point about Ku-band antennas (potentially pricing customers out of the market for VSAT), they've come down dramatically in price. It's not so long ago that the price will have been $40,000 to $50,000 for a Sea Tel or Orbit antenna, and north of that, as they were the only players in the market. The market has become competitive, quality standards have risen, and that's driven uptake.

The introduction of shared platforms has also been a key change that's driven maritime VSAT adoption. In the past, when people used to buy VSAT, they used to buy dedicated connections, and that predefined the customer set for them, because only certain customers, typically offshore platforms or rigs, could afford to buy dedicated capacity.

Now, with shared platforms, you can have fleets sharing their bandwidth, you can have integrators sharing their bandwidth across multiple customers – all leading towards a much more economical solution for the vessel.

All these things have been pushing VSAT forward, and because the market has been scaling you've now got far more standardisation. Installing a VSAT is not the headache it used to be. We've seen Maersk roll VSAT out across hundreds of vessels, and manufacturers and their service agents are getting closer to making VSAT installation much more like fitting an L-band system.

So there's a bunch of things which are facilitating VSAT to move forward in a way that it's never moved before. I come back to speed and predictable cost performance. That's the way the market is heading. If you want broadband on those terms, then you have to buy VSAT, whether it's Ku-band VSAT, Ka-band VSAT or something else. They're the solutions that fix users' costs.

***Digital Ship* – So is it just the price issue that's the main obstacle that's left to VSAT adoption? Is that what's stopping people from adopting these systems today?**

JC: I think there's a bunch of other factors that people are looking for which previously you could only get at L-band, which are becoming far more acceptable now around VSAT. For example, the ease of installation and the predictability of the coverage. Improvements there are contributing to VSAT being a far more palatable choice than in the past.

***Digital Ship* – Wei, what's your perspective on this? You do market research on how these things have changed in the last few years, what's your view?**

WL: Our view, I believe, is different from you since you're directly immersed in the field. You have many concrete examples, and we are really looking more at the financial performance, company reports, etc.

If you look at the macro level of the market, I think as of today there are all kinds of technologies in the maritime market, there are more than 300,000 satellite terminals in the maritime sector across the frequency spectrum – C-band, Ku-band, L-band, and even VHF.

But how many are broadband capable terminals? At Euroconsult we have a different definition of broadband. The 432 kbps that was mentioned, very few companies or ships can support that.

So I think today most people have (even on VSAT) between 64 to 128 kilobits per second. We say that if your service is more than 128 kbps, then it's broadband.

Under that definition, we see today the market share of broadband terminals is approximately 10 to 15 per cent of the total, meaning another 85 to 90 per cent of active terminals (active meaning they are in use at least one time during a quarter of the year) are not broadband.

How about the future? I think, as was mentioned, there will be the introduction of new systems, higher capabilities, new frequencies, and we do believe that these new systems will drive the market.

As many of you know, in the past, one vessel could have several different terminals on board, it could have a Fleet, it could have Inmarsat-C, it could have a VSAT for different purposes, but I think the general trend in the future is that we will try to get a decreased average number of terminals available on board each vessel.

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It's too complicated to manage many suppliers with different usage policies. One supplier for application, and others just for backup. You don't always need to use backup, but you're still paying a monthly fee.

So I think in the future, shipowners will try to combine all these functions into one broadband terminal – this is becoming a big trend. We believe that many of today's existing lower bandwidth terminals will be integrated into broadband solutions, and they will be replaced gradually.

But on the other side we see several applications that do not really need broadband, for example asset tracking. Container owners can track their shipping containers via satellite terminals. This is not only relevant to maritime transportation. The same container can be used in train transportation, so a standardised tracking solution is required.

There are some specialised operators in the United States, they are doing asset tracking and machine to machine applications using really low bandwidth, L-band or VHF, and they are close to having global coverage.

For these applications we see a strong growth trend because more and more smart devices will exist. These devices are really small and don't require 1 Mbps access, they just need several kilobits per second.

They are low cost, I believe the terminal cost is approximately between $50 and $100, and depending on the scale of your business you can have a monthly fee as low as $3 per month.

So there are several large and growing markets for these kinds of applications in the future. On one side there are broadband maritime applications, they will integrate everything else today running on different applications. On the other side there will be an increasing number of smart devices where it is not really necessary to be connected with broadband, using really low bandwidth.

In the middle we have some narrowband provision, for example Inmarsat E&E products are losing their market share which is being replaced with broadband or low band services.

On the other hand, we know there are still regulatory requirements, because in the maritime sector safety is key and regulatory issues exist. There are discussions at the regulatory organisations, normally they take years and years, like what we see for the new GMDSS.

I think Inmarsat is working hard to get a FleetBroadband certificate for this safety communication, but I think it's not really immediate, like in the next month or next week.

But I think even with that certificate, I think many of the Inmarsat-Cs are just recently sold so the ship owners will not really change and buy a new one. I think the general long term future is that there will be broadband and very low data rate terminals, but in the midterm perspective I think everything that exists today will still exist for quite some time.

In terms of the market inhibitors, you mentioned the price, which is important. For this discussion, most of you are European companies, but I speak with a lot of Asian companies who don't invest much towards the crew's welfare.

So price is one factor, and another inhibitor is the fact that not everybody is looking for broadband services. It's a combination of different factors in this market. But I think in the future, for sure, broadband will grow and will represent a much higher market share of the total market than today.

***Digital Ship* – Is the growth that you see in that steady or is it accelerating?**

WL: We see a slowdown for VSAT. I think it was accelerating maybe two or three years ago, but I think from last year, people who are using VSAT, who are migrating from Inmarsat to VSAT, are mostly high-end customers used to paying more than $1,000 per month per vessel.

These customers, in terms of number of customers, are limited.

On the other side, I see Inmarsat has decreased the price of airtime services. Prices are decreasing, and antennas are becoming smaller and lighter.

The market is enlarging but it's enlarging at the lower end. They are not customers who are paying $3,000 per month. They are looking for broadband, but they have just $500 per month.

For the general trends, the ARPU (average revenue per user) will go down, but the number of installations will grow.

CI: There are still, surprisingly, 9,000 Inmarsat-Bs commissioned, and the majority of those are operating at 9.6 kilobits. All of the standard e-mail systems, the SkyFile, the Rydex, the AmosConnect, all of these systems have had to evolve and have to support dial-up mode as well as IP mode.

I guess it is a very strong industry trend that the operators will not get rid of the old satcoms equipment until the last minute they have to. This is visible with the Inmarsat-Bs, and it was the case with -A, when -A was retired. These Bs will still be there until the end of 2014.

AR: We have a plan for when we have upgraded we will deactivate the E&E. The Inmarsat-B or Fleet 77, that will be deactivated when we have the combined solution in place. Inmarsat-C, of course, we need to keep.

***Digital Ship* – Soren, do you want to come in on this and give us your view?**

SK: I think we are still exploring. With the antenna sizes going down, I have actually probably switched my opinion more to the VSAT systems, because now it's also in a range, moneywise, where it's beneficial. It's not so difficult to install anymore, like when Allan mentioned five years ago it was a very big job.

One third of our fleet is actually on FleetBroadband with AND Group, where our backup is Fleet 77, and we have chosen not to decommission the old system because that's the backup. But of course along the line it will probably be decommissioned.

We have limitations for the crew. They have to share, like was discussed before, 50 per cent of the bandwidth is for business, and 50 per cent is for the crew. But they are limited.

Another third of our fleet is on FleetBroadband with Stratos using the Infinity box to control usage, each crew member has to log in to access the system. We are monitoring the usage, but until now they have been 'no limit'. We are looking at perhaps two hours' time per day per crew member as a limitation, but until now we have not been forced to put anyone on the limitations.

The last third of our fleet, the latest implemented at the end of last year is with KVH. We decided to go for their mini-VSAT dome, it's not very big, so very easy to install and an easy set up.

With this system we actually put in routers on each deck, this is on 14 vessels. We don't support any communication computers on board for the crew, for the crew's access to the internet they need to bring their own devices, most of them have laptops but it could be tablets, or whatever.

They can only connect to the internet through the routers and they have unlimited use.

So we tried three different systems, and now we then have to monitor what we actually prefer. On the VSAT installations we have the FleetBroadband 500 as backup.

***Digital Ship* – So you're currently going through this process at the moment?**

SK: Yes, because I think it's very difficult to say what the next step will be.

VSAT is very convenient for vessels trading in Europe and the US. But as long as we have our MR size ships going to the Pacific and Atlantic we have to look at other options, because they cannot go with VSAT, the crew will complain because they have no coverage. So trading in these areas you are more or less forced to use Inmarsat FleetBroadband.

That's what we are looking at, and that's why we have taken one third of our business, trading mainly Europe/US, to try the VSAT out. I think it's very convenient, and I actually personally prefer that solution, because it's very easy for the crew, and it's my perception that the crew like the easy access with the hotspots.

I see it like an internet café for them, they just log on, Of course some masters actually put up rules saying they can use it from eight o'clock in the evening to 10 o'clock, or four to eight, which is when everybody wants to log on actually, because then the day team are off duty.

PF: What's your fair use policy on these KVH systems, for instance? How much bandwidth do you have, or how much capacity? You said 10GB?

SK: On the VSAT we have no limit on usage, but on FBB our agreement is a VLA of 10GB.

AR: But can you do live streaming and Skype?

SK: Crew can go on Facebook and some vessels also have Skype or Microsoft Messenger/Lync for the master.

AR: We don't support Skype and live streaming.

***Digital Ship* – Do you think you will end up with one standardised system across the fleet or split between different types of vessels?**

SK: I don't think we'll be standardised, because we have three different managers, and I like them to be able to explore and recommend what to do.

Of course I try to standardise it if I see some advantage in one system, and that's also why we have two thirds with FleetBroadband, because as the first system we installed I think that was very good and we copied that. But I also think that changing to the VSAT was a good decision, because I can hear from the crew that they like the access through the routers, and they can just log on even on their iPhone or Samsung, or whatever device they are using.

The other advantage here is that it's

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separate, this is pure crew. We have the business communications using the same box from KVH, but it's separate. The master has no administration for the crew, they just have to log on. This is pure crew welfare, that part of it. So that's what I like with it, it's easy to administer and we don't set up the rules.

The downside is that we have some of the complaints like there is no bandwidth after working hours when several users are using the available bandwidth.

***Digital Ship* – Is this an inevitable consequence of crews working in the same environment where they live, these 'bottlenecks' as users compete for bandwidth at the same time?**

PS: Even if you get one gigabyte you will have that complaint. We are seeing that. If you don't have that traffic control, any system will fail.

James Collett, Intelsat, and Wei Li, Euroconsult

You can see that at home where you have 10 gigabytes and you have three boys playing their Minecraft – you can imagine 15 or 20 people on board a vessel. You need to do some control to give them a fair experience.

SK: I don't think that this is the norm yet, because I think when looking towards Asia, looking at some of our previous pool partners, it was not my impression that this was the standard.

So I think there's a way to go, but I strongly believe that when shipping companies see the benefit on the commercial side, and a return of investment on the business side – on the communication cost, on all the files sent forward and back between masters and charterers – it would actually have savings in the long run.

I know that we should not pressure the master and chief engineer in the office with every e-mail, but on the other side I think it's very convenient for the master or the chief engineer if he can see the supers are online and he can just ping him on Lync and then ask a question.

Setting up that dialogue every day with the supers, they know how the vessel is actually run much closer than if they have to pick up the satellite phone. Because in the old days it cost 50 kroner a minute, so you would not do it.

Now you just have one line messages, like I do even with the guys sitting next to me in the office, I might send a one line message or a joke, and we can now do exactly the same with the vessel. So that's improving teamwork, that's one of the biggest advantages.

***Digital Ship* – If it gets to a stage where these sorts of things create competitive advantages for shipping companies, do you think this will drive people who don't want to be left behind a competitor using information better?**

SK: It's very convenient to have online access to the vessel, we have the ability to communicate, with pictures (live and still) as well, with the onboard crew, because many of the challenges they have are technical. They're very easy to solve when you can assist them with direct communication rather than doing everything on an e-mail.

***Digital Ship* – And you think the value is outstripping the cost?**

SK: Yes.

***Digital Ship* – A number of high throughput satellite systems and next generation satellites are about to be launched, with regional and global coverage – there's Global Xpress, Telenor's Thor 7, James and Intelsat's EpicNG, and O3b to name but a few. Does the industry at large need, or even want, these services at this stage, or is this very much a blue sky future that we're looking at?**

JC: I think we probably need to segment the market a little bit across the different constituent groups to see what they're looking for.

Certainly we have a group of users today who are looking for out-and-out performance. These are typically the offshore guys and the cruise guys, and they just can't get enough bandwidth in the locations in which they operate.

So one of the reasons we're coming forward with High Throughput Satellite solutions is to address this marketplace. It's one that is somewhat predictable in terms of the locations in which the users operate, because people tend to be exploiting oil and gas reserves in the same locations, whether it's North Sea, offshore Brazil, Gulf of Mexico.

But when we look outside of cruise and offshore and into the wider maritime market, the discussion thus far has been that uptake has been hindered by satcom cost performance, and that most people would use systems more if the cost per bit was lower.

High Throughput Satellite is a sure way of driving down the unit cost of service, because we can deploy substantial spectrum resources in a very narrow area and can reuse that spectrum to provide more bandwidth for a given region.

If we can offer more bandwidth for the same spectrum, that means someone, somewhere along the chain can drive a lower price per bit to the end user, and we see that lower price per bit really catalysing the market and driving fitment and use to the next level.

So people who have been sitting on the fence in terms of taking on VSAT-type solutions will say the economics of these solutions are now fit for their requirements. They will get the bandwidth they want for their crew and for their operations at economics that make great sense.

That's one of the reasons why we're coming forward with High Throughput Satellite solutions, because we really think it will take the market to the next level.

***Digital Ship* – So you're saying that there is demand from specific customers already, but once that resource is available you think it will be attractive to a wider market segment?**

JC: Absolutely.

***Digital Ship* – The coverage areas that you have planned for EpicNG at the beginning, where are they and why have those areas been chosen?**

JC: Maritime is a big part of the strategy, as is aviation. We are presently focused on two satellites that give coverage of the Americas, across the Atlantic, and then all of Europe, the Middle East and across to Asia.

That's the capability we have announced to date, but we fly 50+ satellites, and when you've got that many satellites you're continuously in replenishment mode. Last year we launched five satellites just to keep the fleet topped up.

So we will continue to look at our replacements and determine whether for that orbital location we should fly an EpicNG payload. This means that the Pacific, the Indian Ocean, more Atlantic coverage are all possible in the coming years for EpicNG coverage.

Our philosophy is somewhat different to other operators in that we don't see the need to put High Throughput Satellite over areas where few aircraft fly or few ships travel, because we already have wide beam Ku-band coverage in that region.

The people who integrate our services (MTN, KVH, Harris CapRock, Astrium Services, etc) will bring together the wide beam capability alongside the High Throughput Satellite capability, and they will define a level of service across all those different beams.

For example, as you cross the Pacific, the traffic density is not high, so we don't feel you need High Throughput Satellite in that region, as you can get very high performance using the Ku- beams that are there today. But as the vessel gets into the South China Sea or the Straits of Malacca, regions where there are very high densities of shipping, everyone wants to maintain their broadband experience and as a satellite operator your resources can get depleted very quickly.

Those are exactly the areas where we will deploy our EpicNG High Throughput capability to make sure that we can deliver the highest level of reliable service, and that we don't get congestion on the network.

***Digital Ship* – Let's come back to the vessel operators here, the potential customers for this – what's your view? Do you just see this as more of the same, or do you think there's potential for this technology to make a big difference?**

SK: I think in the long run there is probably potential, but presently from our side it's more or less just crew related, they are screaming if they don't get the bandwidth that they are promised. But in 10 years ahead of course we'll need this, because I believe on a vessel as well as ashore you should just be able to log on and then have 10 gigabytes for your own laptop.

So in the long run I think the service is needed, but I still think there is a long way to go until all the ship owners actually want to have this. It's probably something for the cruise liners, because there everybody is expecting that they can be online, because that's leisure, but on the vessel you always have to quantify it against the cost.

For vessel performance you more or less need e-mail and you need to be able to communicate with them on Lync or something like that. Do you actually need more speed than we actually can have today? If we get what we are promised today then I think the next step will be to get used to that and see what is the advantage, how can we utilise it.

But in the long run I think we should actually be able to be just online 24/7 with high speeds so we can always talk to people, we can remote access everything. I think that's the way the development is going, but it's probably not going as fast as the industry wants or even that some of us want, because we also have to look at the expenses.

***Digital Ship* – And our other ship operators? Peter?**

PF: I think previously one of the big problems has been the low focus from the satellite operators towards the maritime industry, because if maritime doesn't want to pay the price for the bandwidth they can find someone else.

When they had the Olympics in China I couldn't buy any bandwidth for my vessels, and there was no focus, or very little focus, from the satellite operators towards the maritime industry. Now they have a lot of bandwidth, and now they have to look for new 'victims' to buy their service.

For instance, trains or aeronautical have a lot more focus, so that has been a disadvantage for the VSAT industry in the maritime business. It's nice that it's turning now.

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Certainty and consistency in the bandwidth level that could be achieved were identified as key to the effectiveness of any satcom system

new ocean regions added to the systems almost daily.

Even if it's the aeronautical part that is driving the way the satellite operators work and we can have some of the crumbs in the maritime business, I think that's very positive.

A lot of new services are coming up. Ka-band, for instance, I know there are a lot of Ka- systems running today and I am very keen to try this and see how it works with the rain fade and everything, but the operators still have their focus in other places – it's still the maritime industry so we just have to wait until the trains and the planes have got their share of the package.

But let's see how it goes. The new services, I think they're interesting, and who would have thought that VSAT would be part of the game today? Three years ago, when Inmarsat announced their GX service, everybody said 'well this will be the death of (Ku-band) VSAT' – but it's still there, and it's still alive and kicking.

It's going to be interesting to see what the next few years will bring, and when Inmarsat's Ka-band is in operation how it will work. The O3b network is very interesting as well, and I think that the cruise industry is going to be the new driver for the services we will see in our part of the business.

SK: With VSAT, one of the most important things for me is that I know the cost upfront, so it's a fixed cost. If I can get unlimited use for a fixed cost that's more important than having even higher speed.

AR: That's also why we are changing to this package with a flat rate each month, because we have seen an extreme increase in costs on the E&E services lately, not only due to the price hike last year but also due to increased traffic.

So it's moving towards that, and also, as Soren says, if we as a ship owner have a fixed cost and we know our budget way ahead, there will be no surprises. Well, there will be some but not many as we have seen in the price hikes last year, and that's a clear advantage.

Going forward, of course the demand for speed will increase, not only for the crew welfare but also from the business needs. Soren also mentioned the charter parties and the contracts, that's a lot of e-mail attachments flying back and forth, and the size of the attachments is also increasing significantly. So the traffic will increase for sure.

VSAT, from our point of view is also the future, that speed and connectivity, with things like Lync or Skype and similar services, that will be the standard in the future.

The fleet manager, superintendent or whatever will have these to talk with the crew on board, the crew on board one vessel will have these to talk with another crew because some chief engineers might want to share experiences on some problem existing on sister vessels, or whatever. I see we will have more and more communication like that in the future.

***Digital Ship* – Was the Ka-band element important for you at TORM in making your decision on Xpress Link, with the promise that you would be offered extra bandwidth in the future?**

AR: What was important for TORM was that it was a future-proof solution, so we would not limit ourselves with equipment limited for this use only, that the provider actually has a plan for the future, a plan for upgrades and more speed, and so on and so forth.

***Digital Ship* – But you could, alternatively, buy the Sea Tel antenna, for instance, and use another Ku-band provider before moving on to Ka-band in the future.**

AR: Yes true, but we have deliberately moved away from buying equipment and now we are leasing equipment. That's also in order to know our costs, and to put the burden on the supplier, roughly speaking. They will have to deliver this SLA, and it will be in their interests to repair the equipment on board.

SK: I am exactly the same, I prefer to lease and not to buy the equipment.

AR: That is a deliberate choice from our side.

***Digital Ship* – It seems that 'certainty' is playing a big part in your choices – the certainty in the SLA, the certainty in the maintenance of equipment belonging to someone else, and the certainty of the fixed monthly costs. If you have these then it's easier for your planning strategy.**

SK: Yes, and then also you get the advantage, with leasing, that in three years' time we can change everything and probably keep the same costs, moving to another supplier if my present supplier cannot provide what I want.

It's only three years, even though that is a little high, but I think they suggested five years or something for the equipment. We decided on three years because we can take a new decision then.

***Digital Ship* – Pelle, you're heavily involved in satcom buying decisions as well – what's your view on the different options available in the market?**

PS: Following on from the comment about higher capacity and speed, I still see a huge problem and that's the global coverage. We have now more than 300 container vessels on VSAT, and they don't have true global coverage.

A bunch of them will probably have full coverage, and looking at supply vessels they will be on the spot and they will have true coverage. But in general, for container vessels and tanker vessels, they will not have 100 per cent coverage – meaning you need a back-up system, meaning when you increase your capacity and speed on your primary system you will require the same on the back-up system. You cannot live with having one prime system running 100 times faster than the back-up system.

So right now you are locked to Inmarsat FleetBroadband as a back-up, and I think everybody knows how Inmarsat would like to price FleetBroadband as a back-up if a competitor is taking the prime system.

I think that's a major risk for this high speed, high capacity satellite system, that it cannot deliver 100 per cent (uptime), and you then need to rely on a supplier with a completely different strategy.

There is exactly the same problem with GX, you don't get any guarantee of the Ka-band, meaning you can actually end up buying an expensive system, a GX system, but you are running 50 per cent on FleetBroadband.

***Digital Ship* – Allan has mentioned that his 99.5 per cent SLA on his XpressLink system will carry over to GX – does that mean it will work either on FleetBroadband or on Ka-band 99.5 per cent of the time?**

AR: Yes, that's the combined solution, but even if running 100 per cent of the time on the FleetBroadband, it will be the same price. Of course, then the speed might not be the same, I agree, and that will be a concern in parts of the world where Ku- coverage is not adequate.

However, it will be a limited period of time until the Ka-band kicks in, and there will be more coverage, at least that's what they're telling me.

***Digital Ship* – So you would need to set up your business systems to be able to work on the lowest bandwidth, you can't have anything critical that needs to run at the higher speed?**

AR: True, or some other things will just take a long time to come through on the lower speed. But it is feasible as of today, because we are not running Lync or Skype or any bandwidth consuming applications, even though the crew would like to. We have limited the access to these systems through the firewall.

SK: Like Allan said, we, on our VSAT installations, also only have the FleetBroadband as backup, and we have informed the crew that if suddenly one of these vessels are passing down to South America they will have an area where they have no internet connection for the crew, then there will only be business connection on FleetBroadband.

I think commercial operations actually only really requires the e-mail, and then of course it's a matter of cost, because all the attachments, like we mentioned, are very huge. The other things are adding up more on the technical side, how we do the technical management. There we now need to find how we can utilise the bandwidth.

Like in the office as well, when I am working with the United States or Singapore offices, sometimes I go into a meeting room and I turn on Skype or Lync, and have a meeting with them. It's just convenient that I can have exactly the same, or our technical manager can have exactly the same, with the vessel when they have a technical challenge on board.

So of course when they have the bandwidth we can use it, and I just see that advantage more with VSAT than I see it with FleetBroadband.

***Digital Ship* – Wei, what are your predictions for the market when all of these new high throughput systems become available?**

WL: First of all, as all of you mentioned, there is an increasing need for broadband

'What was important for TORM was that we had a future-proof system' – Allan Rasmussen, TORM

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because bandwidth for almost every application is growing, along with the number of installations.

If you look at the Ku-band, when it first started Ku-band systems were introduced for home television broadcasting. If we look at the capacity usage as of today, at Euroconsult we calculated that on commercially available satellites in 2012, approximately 6,500 to 7,000 transponders sent and received signals. Mainly C- and Ku-band.

How many of them are useful for maritime? We calculated between 150 to a max of 200 transponders, so that maritime as of today stands for about 3 per cent (max 5 per cent) of the FSS operators' capacity, meaning traditional FSS operators like Intelsat, Eutelsat, not Inmarsat. It's a small portion of their business.

If you go back maybe five or 10 years, if we are talking maritime communication the only solution was Inmarsat. But I think in the last few years, with the decrease in price, the decrease in weight and the size of antennas that are installed, VSAT has become more and more interesting.

They have capacity which is covering mainly land for telecoms or for broadcasting, but still have some margins on the beam which cover the maritime regions, so they can use them to serve some vessels.

The FSS operators began with that and, receiving a positive response for VSAT, they began to enlarge the beams and cover more maritime regions to include more customers. Now that maritime is becoming a serious project, operators have started to launch payloads to cover more maritime regions.

But even then the mobility side, including the maritime side, is still a small portion of the FSS operators' game. They aren't announcing the launch of a new constellation which will cover only maritime regions. So there will always be areas without any Ku-band coverage.

Even with the Ku-band coverage there is rain fade, and regulatory and safety issues, so L-band will still exist. L-band will still exist for the very long term because of this reliability backup, for regulatory and safety reasons. I can say that in five or even 10 years, most vessels that currently use Ku-band will also have L-band on board.

Inmarsat is investing in Global Xpress, and discussing Global Xpress at all the conferences, but don't always mention another project in the works called Inmarsat-6, the L-band replacement satellites to replace the current Inmarsat-4 constellation. They are launching Alphasat soon which will significantly increase the L-band capacity over Europe and the Middle East.

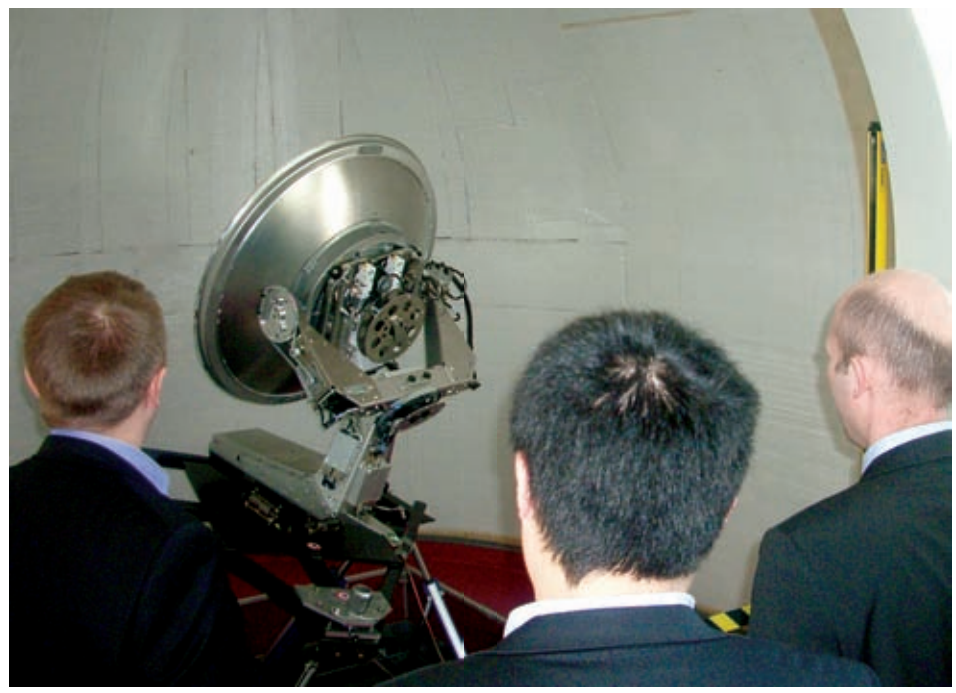
So L-band will continue to exist for quite some time, because the need is there, but it could be for different purposes than today. It is the backbone of communication for many vessels today. Perhaps in five years it will mainly serve as a backup for safety communications, but it will still exist.

The majority of customers who currently use VSAT previously relied on Inmarsat, so as they switch over to Ku-band resources from L-band can be freed, and I believe that Inmarsat will find a way to use this capacity. If they don't, they will lose the spectral rights from the ITU and it will go to other applications.

So Inmarsat will try and prevent this from happening, but they won't be able to increase their installation base that fast. So how can they use this spectrum? They can increase the quality of the service.

On the other side, the bandwidth is growing because of the introduction of Ku-band and Ka-band. But for the L-band, bandwidth quality will grow as well, though not to the extent of Ku-, because there is this physical limitation. So I believe there will still be a place for L-band in Global Xpress and Epic's future.

Ku-band and Ka-band, in terms of business model for traditional FSS operators, is different from Inmarsat. Inmarsat look at how many subscribers they have paying monthly fees. But FSS providers are not concerned with that, they place a satellite in the sky and prior to the launch they have to sell as much capacity as possible.



Allan Rasmussen, TORM, Wei Li, Eurocosult, and Pelle Stroby, A. P. Møller – Maersk, watch a VSAT antenna being put through its paces at the Cobham SATCOM testing facility

They assign multiyear contracts to service providers for capacity, who pay several hundred million dollars per year, and are not concerned whether or not they use the capacity or how or how much is used. So once the capacity is sold the risk is transferred to the service provider.

It's different from the traditional Inmarsat case, because Inmarsat does not pre-sell L-band (except for leasing, which is a small part of its business). It will be slightly different with Global Xpress, because the Ka-band is pretty much closer to FSS than the traditional MSS. But here the business model is different, so the risk is different.

Inmarsat has to increase subscribers and has to increase ARPU because that is directly linked to their revenue. But the FSS operators, they do not really care how many vessels there are, if they have three transponders sold, they're sold.

The risk is for the service providers who have 10 vessels today, whether they can have 50 vessels tomorrow or whether these vessels will require three times the bandwidth tomorrow. So it's quite different.

I think in the future for sure more bandwidth will be required, so there must be a place for Ku- and Ka-. But L-band will still exist.

Part of this depends on the business model, it's not really 100 per cent technology driven. There are pricing issues and distribution channels behind the products, so I think, from our perspective, that Inmarsat will still be active in the market for the very long term, and will still be the largest provider.

But the market share of Inmarsat will decrease, because there is more and more competition, people can provide higher capability services, and they are targeting maybe different targets, not just maritime.

Everyone has their own place I believe, for example O3b has a very high capability service, but the antenna is quite complex and quite big, so you cannot install it on a small fishing vessel for instance. Everybody is targeting a different audience.

It really depends on your strategy. If your strategy is aimed at targeting every single opportunity, I think in that case maybe you will not profit. Look at your strengths, look at your weaknesses, then compare them to others. Position yourself properly and find a good distribution channel.

***Digital Ship* – Chris, your company is providing antennas for all of these, Ka-band, Ku- and C-band, L-band – what's the Cobham strategy on all of this?**

CI: As well as MSS, we have worked with FSS providers such as Intelsat, going back many decades, and also we have a major investment at the moment in Inmarsat GX. We're supplying Ku-band, C-band, Ka-band, X-band systems, this is in addition to our very wide and broad installed base on L-band.

We wouldn't say you needed to go with one area in a particular band or another, it's a question of looking at the requirements for each sector. Certainly we wouldn't say you need a particular technology, such as Ka-band, we would have to listen to our customers very carefully and find out what they need at the solution level, and also judge where the requirements are going to be several years hence. But we would not prescribe a certain flavour of band or technology necessarily for our customers.

What we can say is that the requirement for bandwidth is charging ahead at an unprecedented rate, so in terms of the requirement we see, certainly on the Inmarsat side, they have reported very strong take up in their largest SCAPs.

I think all of the big SCAP models, the one to two gigabyte SCAPs, the three to six gigabyte SCAPs, and the 10 gigabyte or now 'all you can eat' SCAPs, they've reported a doubling of uptake in those for the last year vis-a-vis the previous year.

Comsys has been telling the market about the maritime VSAT, and where just a year or two ago we were talking a few gigabytes per month quite commonly, these have advanced now to 10 or 20 gigabytes per month.

On a purely VSAT platform, not an adapted L-band platform with throttling or anything like that, we're talking now about common stories of 50, 60 or more gigabytes per month per vessel. So, absolutely certainly, elements of the market such as the tanker sector, and some of the more complex high end commercial vessels, are showing a strong requirement for greater bandwidth.

We have a project, a contract for more than $40 million with Inmarsat for GX, and we are providing two Cobham terminal size platforms for that system. It's going to be interesting to see how that changes the market, because in terms of what it delivers much of it is new.

The Ka-band characteristics are different, the pointing accuracy is an order of magnitude greater than what is delivered on L-band. We're talking about less than 0.2 degrees of pointing accuracy, which is a quantum leap compared to the accuracy required for L-band, and yet there will be an expectation in the market for us to deliver, certainly with the smaller size platforms, something which is nearer in cost to what people are currently used to for an L-band high end terminal.

I won't say anything about price guarantees at the moment for hardware, but offerings will be available nearer that end of the spectrum in terms of hardware cost.

GX is the first Ka-band system which will be pretty much a global service, and also what is interesting about it is they will be delivering an end-to-end system. In terms of what they have announced recently on their network, we're not involved in this as a hardware provider, but looking at what the characteristics are – it's interesting.

Alongside the VARs, Inmarsat are providing the solution level as well as the satellite infrastructure level, as well as managing the hardware platform. Through the former Ship Equip they also have this service delivery platform. So they are providing an end-to-end system, and this is changing the market significantly.

At the same time we have unprecedented levels of competition coming in, which is a very good thing.

We mentioned O3b, it's a far more of a specialist platform, and it would be wrong to position that really for the wider commercial market. We hear you need to commit to a whole beam from O3b, and this will be very much of interest to passenger and some of the specialist areas such as scientific research vessels etc.

But as other platforms advance we will see very good, well-needed North Atlantic capacity which will be delivered

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by THOR 7, and as EpicNG is rolled out then we will continue to work with them as we have done in the past on the previous platforms.

What I think will be the decider is if user simplicity can be maintained, and, coming back to my first point, is it what the customer needs? If everything that we have described is too complex and the attempt to provide an end-to-end system means that there is just too much in terms of the value chain to deliver from one company, then that will be a big challenge.

It will certainly be successful and it will change the market if, from the end user perspective, it is functional and it is not overly complex. I think we will see more in the next couple of years, that will be the testing time to see if that can truly be delivered, something accessible and functional.

SK: That is what is needed, because today if I want to buy a cell phone I can probably log on to the internet in the morning, then after a couple of hours I have an idea of what I want, I can go down to a retail shop, I can look at three/four/10 different things, and at the end of the day I can decide what I want, because there is not a big difference on the newest technologies.

But I think the difficult part in this industry, with satellite coverage to the vessels is there are so many choices. I am not an expert in it so I need expert advice, but a lot of experts tell us different things, so I actually have to base my decision in this on what I believe. This is not what I want.

I want to have, like on the cell phone, I want to have very good advice on what the next step is. But there are so many different choices, and I don't know what the future will be. It's not easy.

So actually what I need from the market is, like on the cell phone, I need to make the best bet on my first choice. I think that's actually the challenge in this.

***Digital Ship* – High throughput satellites will, of course, only provide a tool, a way to use applications to run your business and offer services to crew. What kind of applications do you see coming with the next generation if we have cheaper and faster bandwidth?**

AR: We can take our support further, if we have some issue on board our vessels. There could be engine trouble, or there could be anything else – why not take a webcam or a videocam wirelessly around the vessel and show some expert sitting back in the office what is actually the issue?

Why is this broken down, what can I do, how can I repair it? Something like that could be the future.

CI: That's what we did at the launch of FleetBroadband as a showcase. We had that model. But at the time we didn't have the pricing structure for widespread use of streaming services.

PF: We have done it a couple of times. It works okay, it doesn't add that much to it to have video, because a picture in good quality is far better than a blurry webcam picture. So if you have a good picture we can see everything on that one.

PS: On all our American vessels for Maersk Line Ltd we are running all the CCTV over FleetBroadband, compressed with a tool. So it is possible. Of course you have some limitations with a monthly cap or something else, so you need to make a choice and not do everything. But I don't think we are having so many restrictions as we want to claim we have.

It's possible, but you need to prioritise what do you want to put through. Again, you can get as much bandwidth as you want, but if you don't have a way of controlling your usage you will just use the bandwidth.

***Digital Ship* – In terms of applications, are there applications that you see that would need a high speed connection transferring huge amounts of data, or are all those applications going to be onshore and communicating with the ship?**

PS: On our container vessels where we have been running tests last month, just downloading log files from an IT perspective, we have done tests on the VSAT where it takes more than 20 minutes to download a log file – that's not acceptable. Today you can do that on FleetBroadband in less than 10 minutes.

So of course there is a requirement for speed and high bandwidth, not for future technologies, this is the requirement today. On most tankers we are doing five to seven gigabytes per month just for business communication, just running the applications on the vessel. Or even more than that, this is an average.

***Digital Ship* – Is it an issue that these applications won't run at lower speeds, or it's just a matter of inconvenience if you have to wait longer?**

PS: Many of these systems are very sensitive to variations in speed, so you will have 'time out' as a problem. If the system is designed for a normal land application where you have no limits in bandwidth as such, you will still get these problems that the system will time out.

You also see problems when you have big variations within the download of a file, that the application actually shuts down.

***Digital Ship* – So would stability be a bigger priority for you than the speed? Would you rather have a slower connection that stayed within a certain range than something that burst up and down a lot?**

PS: We have seen in this test that the stability that we assumed was good on the VSAT was not good enough. If it's stable we can design systems based on that.

SK: I think many of the applications will be run ashore and you will just need access to the data. You won't even need the crew involvement, you'll just need to be able to pull the data like you can do with the present systems today. Of course the speed is still limiting the time it will take.

CI: We have a lot of focus at the moment in terms of connecting all devices on the vessel. The Cobham policy at the moment is to connect up as much as possible using lightweight Ethernet, and we have a development programme at the moment which is focused around that, balancing the L-band, and in the future possibly the VSAT side, but also AIS radio and GMDSS consoles.

It certainly will be the position that in a year or two it will be possible to have a continuous stream of all key performance parameters off the vessel, and that really does match up with a lot of what people have in other environments now, in terms of the Cloud.

I've got lots of Cloud-enabled devices in my office or on my person. Nowadays I have an automatic update and backup of all my files via the Cloud, I don't have to do anything proactively. The application I have will use the amount of bandwidth that's available and trickle feed, but make sure that over time everything that I have in my target area on my computer is backed up.

We will certainly see more of that, that's certainly Inmarsat's plan, to move towards a Cloud web service infrastructure on GX. But we'll see, I think, more of what we see on land, mirroring of databases and replication. At the moment this is only widely available to commercial ships who have taken on a FleetBroadband unlimited plan.

PS: There is nothing that's unlimited! Somebody tries to sell you something that's 'all you can eat' – but it doesn't exist.

PF: All you can eat if you are not hungry!

CI: This will become easier, and solutions like engine monitoring. The engine operators are now selling their services in terms of availability, not in terms of hardware, and the monitoring has never been readily available.

It's been talked about a lot over many years, but we will certainly at some stage reach the point when on land you can access the same rich volume of detail that the chief engineer can on the vessel.

PS: That's the easy part, because if you are talking about engine monitoring that's a system designed for maritime, meaning they know about the limitation you have in bandwidth. But still you have a possibility of combining these two issues and getting something.

Where we really see the problem is HR programs. Windows 7 – would you imagine how that would run over satellite? Having education programs where you cannot finalise them because before you've answered the last question you get a timeout in the middle – if you have tried that three or four times then you give up.

SK: Actually, as you mention education, now we have ECDIS, that will be a requirement next year. We are actually installing ECDIS this year on half of our vessels and we will do the rest next year.

One of the biggest challenges is that everybody has to be not only on a course where they learn to use ECDIS, but also where they have to use the ECDIS of the manufacturer you have, and in our fleet we have different manufacturers, though now we are streamlining the equipment to one supplier.

If you have a medical case or something and you have to relieve one of the crew it could be that the replacement doesn't have his updated manufacturer's training on that specific manufacturer of your equipment.

One of the new things that have been initiated is that now we can actually have that course done on board. We have a VSAT connection, the only thing they need is a webcam since they have to see that guy and they have to check the picture of the face on his passport, and then they will issue the certificate after he has completed the test.

So this is something that actually will be driving some of these requirements I think, because I can easily compare whatever this will cost compared to the cost of a vessel having to stay alongside because I have a medical case, and I cannot put a new mate or master on board just because he doesn't have his ECDIS specific maker course.

Now we can do it on board. Here you actually have a business need for it and a business case, because if this vessel is just

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Of course, if you do proper planning you should never be in a case like this, all your crews should have these courses a long time before you are planning to have them on board. But still there will be cases where this will not be the case, and if you just have a few cases that would actually have paid off the VSAT installation.

PS: We have several different kinds of businesses, but for sure in the tanker and liner operation the business needs are getting higher and higher and stronger and stronger. So now there is a minimum requirement for communication, and not just for crew welfare where you can then calculate what is the risk of having a vessel out of communication for some days, you will probably not lose people on that.

But if you are running business applications then you also have a big risk if the system is not online. You can have a back-up, but if the backup is not a part of the fixed fee then you are running a risk on your cost.

***Digital Ship* – So which option would you prefer – to have 128 kbps all the time, running reliably at 99.99 per cent, or would you rather have a system that could reach 1 Mbps but can fluctuate down to 64 kbps?**

PF: Well actually, when we started up with VSAT in Maersk Supply Service we had dedicated bandwidth, and when the vessel was moving from one area to another area we had the satellite guy travelling around and setting up new modems, and they worked a couple of months and they went back again. It was a living nightmare to keep track of.

We had dedicated bandwidth, and for two of the vessels who were travelling around the world, without telling them I changed to shared bandwidth, double the speed but shared bandwidth, and they were sharing this with 10 to 15 vessels.

The captain, who was very focused on his VSAT, he called me and said, 'This is the best system I've ever worked with, it's fast, it's reliable' etc. So I said 'Before you had 256/512 kbps dedicated, now we have 512 kbps/1 Mbps shared'.

He said, 'This is running double the speed, it's much more reliable and it's a seamless changeover'.

That was the Speedcast platform we chose for those vessels, and actually they didn't realise they were not on dedicated bandwidth anymore. So I think, while it's nice to have your dedicated bandwidth, I think the shared platform is just as good as the dedicated.

AR: It's funny you say that Peter, because we had the exact opposite experience with shared bandwidth. Where it's dedicated we had only positive feedback from the vessel, and we have a lot of complaints from the vessels having shared bandwidth.

***Digital Ship* – But is there an issue, coming back to what Pelle was saying, with applications that don't like variations in speed? If you're using business applications where the bandwidth goes up and down, might it affect performance?**

PF: If the applications are made for maritime business then they should be made to handle it.

Cobham SATCOM was the host for the round table discussion session, welcoming participants to its Copenhagen offices, formerly the headquarters of Thrane & Thrane

PS: But it is also different if you are buying one gigabyte or you're buying 64 kbps or something like that. You are also stressing the system if you are buying small bandwidth and then it's not stable.

PF: We have also supplied all our vessels with wireless access points for all the decks, because if we didn't do that they would go out and buy all kinds of stuff.

They have three access points all over the vessels. We can go, we can remote control these systems, we have full access to the vessel, we have full access to select what they should be able to do and what they shouldn't be able to do.

We had a vessel where we had to open up the service, and suddenly everything went down. We discovered that only one thing dragged the system to zero, and that was the Apple services, App Store, iTunes, all that. It could actually drag our onboard VSAT system down.

So of course we have told them they can access our system with their smartphone, but you will not be able to update your programs, you will not be able to download music, you will not be able to do this and that, because it's a bandwidth killer.

CI: Facebook was the number one app in the recent Astrium survey of crew communications, and that is obviously a major change since 10 years ago – social media just did not exist. So this is a completely new dimension for every element in the service chain to consider, and it will be expected in the future.

***Digital Ship* – As a final question – in 10 years' time, what would you see as being the most widely used communication system in commercial deep sea?**

SK: Well, we started out talking about everybody having 10 devices, and I think that in ten years' time we will have a situation that will be more like what we have with cell phones today.

It will be decided whether it's 4G, 3G, GSM, whatever, I won't care. It will just log on automatically, the modem or device I have will find the connection automatically, and I can even change suppliers if I want.

Exactly like your cell phone, it will find whatever is available where I am, and it will choose the cheapest supplier where I am, where I have a subscription, and it will be up to the crew and myself what bandwidth I would have.

Something like roaming satellites, where even my crew can log on to a hotspot on board and they can then buy it. If they want to have 10 Mbps like they have at home they can just swipe their credit card and obtain the bandwidth required.

PF: I think that sounds nice, but with the speed that we have seen the technology change for maritime applications or maritime services it might be a little bit longer in the future.

I believe low orbital satellites might be a little bit more widespread in the future. It could be for mobile devices for personal use. But I am not sure that the maritime business will be the driver for this service, it will probably be the news, or military – think of military applications like GPS in the good old days.

I hope there will be some more options, today we have VSAT and we have Inmarsat services, of course Iridium as well – that's not much to choose from. I would like to see some more different services in the future, that would be nice. Different technologies.

SK: But from a supplier point of view how much will the airlines drive this as well for us? Last time I was up flying I had free internet on the way to Singapore.

CI: The aero industry has an advantage over maritime, in that it's not so badly affected by the rain fade issue on the Ka-band, for example. They don't have the same levels of attenuation higher up in the atmosphere. So yes, there will be a lot of development on that side.

There have been new Ka- antennas announced in the last few weeks which are flat panel for use on aircraft, which doesn't exist as yet on maritime. So aero will be a driver, it will bring forward the networks and the solutions which may flow into maritime - certainly.

But I think in 10 years' time Ka-band and high throughput satellites as a whole will be leading in terms of bandwidth, but not in terms of installations. In terms of installations of the key voice and data terminal on a ship, we will still be in the realm of L-band and FB, and I will be very happy to see that, because I was there at conception 10 years ago.

JC: To Chris's point I would agree that in 10 years' time, in terms of the number of installations, that the L-band installations will outnumber any other system. But I would say in terms of what this group of users is spending on services, I believe the spend on VSAT services will be greater than L-band in 10 years' time.

PS: In total or per vessel?

JC: Certainly per vessel, but I would say the aggregate spend on VSAT services will be higher than at L-band. I think that could probably be the case today.

PF: As a capacity provider James, what's your view on the price trend for the bandwidth, where do you see the prices going, up or down?

JC: The cost per bit is coming down. The bandwidth has to grow and the unit price has to come down. We're delivering more from the same spectrum, that's what the next generation of satellites is giving us.

We shouldn't forget Iridium as well. Whilst Intelsat, Inmarsat and Telenor are all investing in High Throughput Satellite networks, I think that if you were to add up all those investments they're still below what Iridium are investing in their next generation network.

So that will help Pelle in relation to his point about being held to ransom for back-up services. That particular monopoly is going to go away starting in 2015 when Iridium NEXT comes on-line.

So as new High Throughput Satellite capability comes online, Iridium will be coming online with its own next generation services. Another resilient L-band backup solution will be available, and there will be choice in the market.

PS: We always have to wait another three years!

SK: The KVH system we have, we don't use Iridium ourselves but they have Iridium on board that they use for their control of the system. They installed it, they told me that was just for their backup if they had to connect.

JC: But just as the KVH Ku-band system should be upgradable to high throughput capability, Iridium is also moving from OpenPort into the next generation, and as I said, they're spending over $3 billion on that constellation.

CI: That's part of my L-band prediction. What they're talking about, bandwidth in excess of 1 megabit through an Iridium NEXT terminal, that of course is very interesting. We will see what services they roll out alongside it.

PF: What speed do you think they will offer on the next generation?

CI: I can only speculate, but Iridium have published L-band speeds of up to 1.5Mbps. How much that is contended we will see, and what the link performance really is in practice: the design is for a low-latency service.

There are 66 further satellites which are planned for NEXT – plus spares, and they are very bullish about the implementation and scheduling.

Though there was that bet that was made in Washington recently, Globalstar did bet that it won't be ready on time. The CEO of Globalstar bet $1,000 to the CEO of Iridium that his network would not be ready on time. The CEO of Iridium said, "Well I'll take the bet – but perhaps you need the money."

We will see! DS

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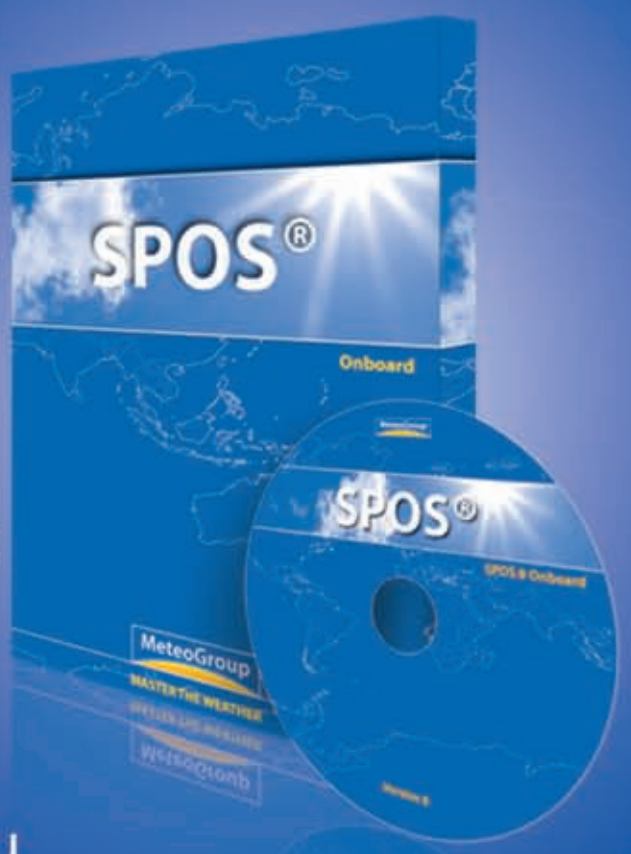

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Consumerisation of IT at sea – challenge or opportunity?

Growing numbers of professionals are beginning to use their own array of communications devices during their working life, as the boom in consumer electronics and the rise of the BYOD phenomenon change the way that we interact with technology. Shipping is no exception – though the use of personal devices on board ship will create specific challenges for maritime IT managers that differ to those on land, *write Reinhold Lüppen and Patrick Decool, Astrium Services*

Five years ago, employee access and use of the latest hardware and software was very much driven by PCs and laptops provided by their companies. Users made the most of their hardware primarily in a corporate context, using the same or similar hardware at home.

However the relentless quest by consumers for always-on connectivity and mobility, and the ability of innovators to cater for these needs in well-marketed and user-friendly devices, has led to a significant shift in terms of user behaviour and expectations.

The phenomenon known as 'consumerisation of IT' has since emerged as a direct result, essentially denoting the increasing use by consumers of personal technology and communications devices in a professional environment.

These changes are happening fast and are set to continue. According to market analysts Frost & Sullivan[1], the iPhone became mainstream in 80 per cent of Fortune 500 companies in just three years following the launch, and Android business users reached three million in less than two years.

Analysts IDC conducted research into people who use a mobile device for professional reasons[2] and found that, in Western Europe the population of mobile workers is due to reach 129.5 million in 2013. The most significant increase in mobile workers is due to take place in Asia-Pacific, where 838.7 million people are expected to use a mobile device by 2015.

This consumerisation of IT has also coined another phrase – Bring Your Own Device, or BYOD, where employees are using technology that they own, for professional purposes.

Unsurprisingly, this has had a significant effect on the way in which companies manage their IT systems, and introduces a number of additional challenges for IT departments in terms of security, confidentiality, cost, infrastructure access, and so on.

The shipping industry is no exception to the growth of BYOD. Although not at the same pace as on land, more and more seafarers are expecting to have Wi-Fi access for their own devices on board.

Crew members, captains and officers on board are consumers after all, and have the same desire to stay in contact with friends and family and keep abreast of the latest news as everyone else, so being on board a vessel for several weeks or months will mean that the demand for private communications is even higher.

Crew increasingly demand access to the tools which will enable them to do this. Their thirst for data is expected to become a competitive differentiator for many shipping companies, conscious that qualified crew members will be attracted by easy access to personal communications (Skype, instant messaging, chat functions, Facebook, etc.).

Benefits vs risks

A key difference to the usage pattern on land is that, although seafarers are using their devices on the corporate network, they are not using them to do their jobs. So in fact, the main benefits to companies of BYOD, such as increased productivity and lower hardware costs, do not actually fit the phenomenon at sea.

However, some of the problems do, like ensuring that infrastructure supports multiple devices, securing the network from outside attacks or just ensuring sensitive information is not available, and having no control of devices in terms of the content they have on them, which could lead to legal repercussions. Do the benefits outweigh the risks though?

In short, yes. The positive impact of low-cost or free connectivity for crew members has already been proven, so we don't need to dwell on it here. Making this connectivity more available and even easier to access is an important goal for shipowners looking to retain and recruit the best people.

In the shipping community, it is estimated that 60-70 per cent of crew use their own personal laptops while away at sea, and 30 per cent have smartphones[3], with growth set to continue.

Current trends show that crew are likely to keep their laptops to store personal files, films and music, whilst new trends include using a smartphone or a tablet for phone calls, social media, games and multimedia; mirroring the trends among 'land-based consumers'.

While there are similarities between maritime and land-based consumers in the nature of adoption, the major difference is how IT managers deal with the issues linked to the use of consumer devices on board ship.

Personal 'smart' devices, like the iPhone, are increasingly being used in business environments

Clearly when it comes to communications at sea, a satellite link is never very far from the equation, and this has a fundamental impact on the way that an IT manager provides access to those devices.

What we're currently seeing, through the phenomenon of consumerisation of IT, is even stronger emphasis on the issues that have always existed when providing crew with access to private communications - notably budget, potentially disrupted business functions, and network security.

For example, an important factor for IT managers is keeping crew comms completely separate from business functions to avoid congestion of lines and potential 'corruption' of business-critical data through malware. Certain satellite comms providers have developed systems which enable IT managers to dedicate a local area network (LAN) to the crew members, and install a Wi-Fi connection to which they can establish an internet connection from their smartphones and tablets.

Crew members' behaviour with personal devices also has a major impact, in the sense that these encourage bandwidth-hungry activities such as downloading and streaming, and to a lesser extent browsing.

The burning question for IT managers is how to avoid overrunning the comms budget, bearing in mind that crew are capable of generating ten times more traffic than corporate functions if their access to data apps is unrestricted.

De Poli tankers is just one example of a company which has had its satcom choices influenced by the need to provide connectivity solutions for the crew

Likewise, a concern for some companies is ensuring that their crew aren't distracted by their own phones rumbling away in their pockets whilst on duty. Take, for instance, Rotterdam-based De Poli Tankers BV, a commercial operator of a fleet of six IMO 2 chemical tankers, two LPG tankers and one Ice classed 1A chemical/ethylene tanker.

De Poli recently upgraded to Ku-band VSAT from MSS and was keen to introduce higher levels of connectivity for its crew. The implementation of these systems also included additional specific communications management equipment to manage the VSAT services, in part because of the control it gives over available connectivity.

The company uses this system to manage the internet access based on time slots for the crew, which means they are able to focus on the job at hand but have freedom to communicate when off duty, which is the important part of ensuring they are happy on board.

So this solution ensures that crew have Wi-Fi internet access, but also allows management to organise when and where it can be used, so vessel safety and efficiency is supported alongside the obvious crew welfare benefits.

A major factor in enabling BYOD is the choice of satellite service.

Shipping companies who invest in VSAT for corporate or business purposes are also seeing the benefits of supplying crew communications with the same equipment, with priority on the ship's business.

Ku-band systems currently available are ideal for this type of package. The launch of Ka-band services in 2013 will provide even more scope, with higher data speeds and all-in-one, flat rate packaging.

Contrary to VSAT, mobile satellite services (MSS) offer a pricing scheme based on the amount of data consumed, so it is very important that the IT manager set limits and alerts for both business and crew usage in order to avoid receiving unexpectedly high data costs. Again, a number of solutions are available, running over MSS systems, to enable IT managers to do this.

Another major issue for IT managers when it comes to crew is additional, time-consuming administration. Given the increasing use of personal devices at sea, satellite communications providers have developed software and solutions to enable crew to administrate private comms themselves, directly from their tablet computer or their smartphone.

Much of the communications management technology available in the maritime market will work with the majority of mobile operating systems, so IT managers being asked for device specific support should not become an additional issue.

Embracing change

What is clear from these examples is that the phenomenon of consumerisation of IT, or the increasing use of personal devices by crew on board, need not present a major challenge for IT managers.

Clearly it requires them to deal with a host of dramatically different cost, security and technical issues which previously were not part of their remit. However recent developments have shown that forward-thinking satcoms providers are stepping up to the challenge and working on solutions to help them tackle these head-on.

The thirst for data and related apps and platforms will continue to grow among shipping company staff as it will on land among the rest of the consumer population. With this as a backdrop, innovative shipping companies, and indeed IT managers, will need to embrace the coming flood of 'iThings' and Androids.

By preparing vessel LAN's and connectivity services for the growth in BYOD, IT managers are performing a vital function for the whole company; that of ensuring it offers an attractive workplace to professionals in a highly competitive recruitment market.

If easy and reliable access to Facebook from a mobile device is what it takes to attract the best people, then preparing your systems for BYOD is something that should be done now, before it's too late. DS

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About the authors

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New features on Crewtoo

www.crewtoo.com

Crewtoo, an online community for seafarers, has launched new features to allow its members to share images, form groups and read daily news.

At the core of Crewtoo is a social networking site which allows seafarers to find and chat to other members, post comments and updates from sea, share opinions, and keep up to date with maritime news.

Users can also sign up for weekly profile and site activity summaries delivered by e-mail to their ship and can now use the site to form their own groups, complete with their own discussion board.

Additionally, a newly launched daily news service allows them to read news updates relevant to them as working seafarers. Non-members have access to the same maritime news.

Managing director Mark Woodhead said: "We believe that the maritime industry should be open, accessible and easy to research, so we made the decision to keep the news site open for general viewing access."

Operated by Headland Media, Crewtoo recently reached a membership of 40,000 seafarers.

The Crewtoo site allows seafarers to join groups and communicate with each other

Bordelon Marine chooses Helm software

www.edocgroup.com

Edoc Systems Group, the Canadian developer of the Helm Marine Operations software system, reports that Bordelon Marine, an American provider of offshore supply vessels, had chosen Helm HSQE Manager and Helm Onboard to manage its maintenance, safety, and compliance operations.

Edoc says that Helm Onboard will be installed on all Bordelon vessels, starting with the new Stingray series class 260 DP2, which was slated for sea trials during May.

Wes Bordelon, president and CEO of Bordelon, said: "Helm is state-of-the-art on-vessel and compliance software designed for our industry, which allows us to maintain our leadership position for quality and safety in the marine transportation sector."

The Helm software provides a central system for Bordelon to manage its inspections and audits as well as any deficiencies, non-conformities, or observations that may arise.

To assist crew with administrative duties, it will provide synchronisation with Bordelon's vessels to share changes to standard operation procedures and close the loop on maintenance requests and other compliance-related items.

Pole Star upgrades Marine Asset Tracker

www.polestarglobal.com

Pole Star has unveiled MAT 2.0, an upgraded version of its Marine Asset Tracker (MAT).

The first product released on Pole Star's new Purplefinder Pro software platform, MAT 2.0 introduces support for hardware on the Globalstar, Thuraya and IsatData Pro satellite networks.

It is targeted at owners and operators of coastal and inland workboats, tugs and barges and the offshore oil and gas market, to help them to manage fleet-wide operations and regulatory requirements, says Pole Star.

The company, which is headquartered in London, says that its upgraded software features Google maps and marine charts, dynamic vessel history trails, graphical weather and zone overlays, interactive ship tiles and satellite AIS data in partnership with ORBCOMM.

It adds that its users will be able to upload key documents, link directly to Seaweb and subscribe to event-based and summary notifications.

"New to MAT 2.0, and indeed to Pole Star, is the introduction of 'intelligent' reporting which automatically adjusts a vessel's reporting rate based on its status," said Jeff Douglas, chief technology officer.

"This means, for example, that we can reduce a vessel's reporting rate when it stops moving, giving our customers the benefit of high-rate reporting when the vessel is at sea, while minimising costs when it's in port."

Customers can create custom hardware and service plan combinations to meet the specific needs of each asset in their fleet. The monthly service plans range from basic daily tracking to real-time or intelligent reporting.

Existing Pole Star MAT customers will have the opportunity to upgrade to MAT 2.0 free of charge.

ISS World of Ports upgrade

www.iss-worldofports.com

Inchcape Shipping Services (ISS) has upgraded its World of Ports database, adding new feedback features and mapping tools.

The service, available online, provides marine assurance teams with the data required to assess whether a vessel matches up with the particular requirements of load, discharge and husbandry ports.

ISS says it employs qualified mariners and local agents to regularly collect and assess berth restriction, and that its World of Ports provides information on 6,800 berths in 3,000 terminals in 1,500 ports in 169 countries. Tanker shipping companies or charterers can search the database to fix a voyage.

The new version also allows for increased personalisation. Besides World of Ports' 170 data fields, users can provide direct feedback on a port call, make comments on a particular berth, or upload documents to provide additional information on a facility.

Users can also store their own private notes on ports and pull in information from other data feeds, including social media, to allow all port related information to be managed in one workspace when screening a port call.

ISS says that its World of Ports is now optimised for use on mobile phones or tablet devices.

New mapping tools allow for map-based navigation to define the geographic areas required and retrieve port information, while search functions make it possible to check various aspects of port, terminal and berth parameters.

Piers Yea, general manager for ISS Group Information says that "the new online service uses the latest technologies for greater user accessibility and a more collaborative approach to deliver the very best in marine assurance data."

What do these market leaders have in common?

NORTH STAR SHIPPING
A member of the CRAIGGROUP

OLYMPIC
OLYMPIC SHIPPING AS

EMAS

SeaBird Exploration

ISLAND OFFSHORE

DCF

NORTH SEA SHIPPING

Eidesvik
Your Partner in Shipping

Knutsen OAS Shipping

SIMON MØKSTER SHIPPING

Gulf Offshore Norge AS

subsea 7

seaTacks

TM Master...

Fleet Management Solutions

Maintenance & Inventory - Docking Management - Centralised Procurement - Crew Management - Voyage e-Log - HSSEQA

TeroMarine
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www.teromarine.no – admin@teromarine.no

Meet us at Nor-Shipping stands A1-06 and T1-24

SpecTec

www.spectec.net

we make the difference

AMOS meets the most demanding Fleet management processes

AMOS: the best choice for Maintenance,
Procurement, Quality, Safety, Crewing software

Aveva deal with Titanic II shipyard

www.aveva.com

Aveva has won a contract to provide an integrated design information management system to CSC Jinling Shipyard.

The state-owned Chinese company became famous when it signed an agreement to build Titanic II at its Nanjing yard, though it also operates a number of other sites. The Aveva Net software was selected to integrate information across all its geographic locations.

"CSC Jinling Shipyard evaluated other information management systems and selected Aveva Net following a process that lasted over a year," noted shipyard deputy director Jiang Jiazhong.

All engineering, planning, materials management and production data will be handled by a centralised digital information hub, says Aveva.

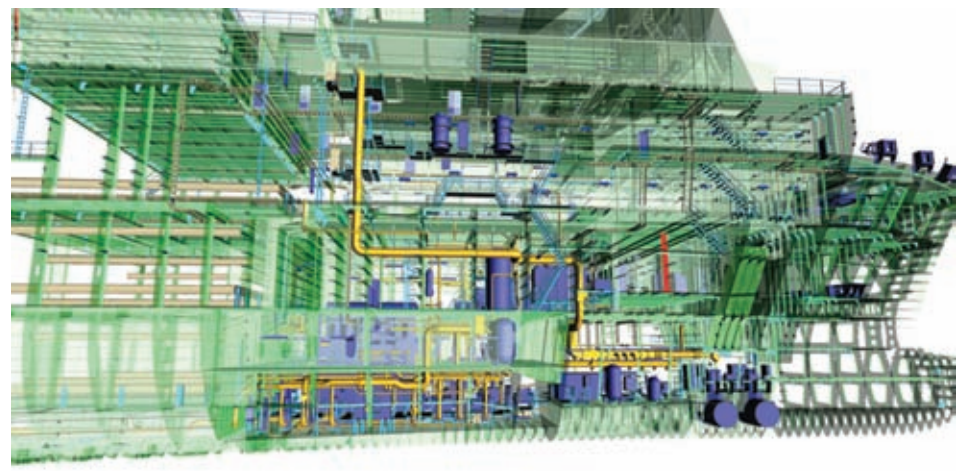
Once information is published, and validated for accuracy, users will be able to see all associated models, plans and technical datasheets, and collaborate through mark-ups and workflow approvals.

"Information should be accessible across the shipyard, regardless of the system in which it was created," said Paul Eveleigh, EVP and head of Greater China, Aveva.

"The Aveva Net suite of products enables customers to collaborate on critical digital information, by making it accessible to all through a simple, intuitive browser interface. The result is that the right information is available to the right people, at the right time."

In related news, AVEVA has also announced that shipbuilder HSHI (Hyundai Samho Heavy Industries) has completed an upgrade from its Tribon M3 software to AVEVA Marine for engineering, design and production.

CSC Jinling Shipyard will implement the software



Hyundai Samho has upgraded to the Aveva Marine system

AVEVA bought Tribon in 2004 and the following year launched AVEVA Marine, combining Tribon M3 with AVEVA PDMS on a single platform. In late 2010, it urged its customers to migrate from Tribon M3 to AVEVA Marine, warning them that it did not plan any further development to Tribon M3 after December 31st, 2013.

"We have over the last three years implemented a very successful upgrade scheme and continue to work closely with customers who have not yet upgraded," AVEVA told *Digital Ship*, declining to say how many customers this represents.

Hyundai Samho Heavy Industries senior vice president, Ok Jae Huh, commented on his company's migration, saying that: "One of the big benefits we found when upgrading to AVEVA Marine is its comprehensive and powerful capabilities for customisation."

"AVEVA Marine is very user-friendly. It will help keep us competitive as it includes efficient tools for the easy development of our own specialised scripts (macros) that can be adapted to the demands of our customers around the world."

Marine Planned Maintenance for wind-farm vessels

www.marinesoftware.co.uk

UK-based Marine Software says that it has recently delivered its planned maintenance software to Njord Offshore for its crew transfer vessels Njord Avocet and Njord Kittiwake.

The two 21-metre CTVs are purpose-built for the offshore wind-farm industry.

Marine Planned Maintenance works on Windows and is DNV-approved. The system consists of a series of planned maintenance job cards (PM JobCard) covering the vessel's equipment.

Each card consists of three major elements: a set of up to six job routines, with maintenance instructions; the maintenance schedule; a history record of previous PM job completion reports and directly entered comments.

Under the contract, Marine Software was also commissioned to construct the PM database setups for Njord Avocet and Njord Kittiwake, along with providing system administrator training.

Two Njord Offshore vessels will implement the system

Anti-sloshing software for LNG carriers

www.amarcon.com
www.abb.co.uk

Software developer Amarcon has signed a cooperation agreement with engineering company GTT to market and further develop a forecasting and advice software system for sloshing prevention on board LNG carriers.

Amarcon, which was acquired last year by the ABB group, is the creator of Octopus, a suite of hardware and software products designed to improve the safety and efficiency of ships. GTT (Gaztransport & Technigaz) is a French engineering company specialising in cargo containment systems for LNG carriers.

Last year, the companies announced plans to jointly develop sloshing prevention software for LNG carriers, and now intend to further develop technology to improve sloshing measurement and prediction.

A module within Amarcon's Octopus suite will be used to calculate the optimum route to save time while preventing sloshing.

"We are looking forward to working together with GTT in order to serve LNG carriers with state of the art onboard sloshing advice, which will help crews to choose the route, speed and course with least risk for sloshing, so time savings can be achieved and damage to the LNG membrane tanks can be prevented," said Leon Adegeest, general manager of Amarcon.

NavCad upgrade

www.hydrocompinc.com

HydroComp has released an upgraded version of NavCad, a software tool for the prediction and analysis of vessel speed and power performance.

NavCad's planing hull analysis now provides for the definition of hull warp, influence of propulsor lift, as well as improved trim tab contributions.

New capabilities for added drag prediction include extended definition and drag prediction for appendages, addition of spray drag for both planing and fast displacement hulls, and a 'Workboat' added seas drag prediction.

For propulsion analysis, there is a new system prediction for contra-rotating propellers (CRP). This is supplemented by improvements in propeller sizing and alignment to propeller model tests.

NavCad also provides utilities to help users assess the accuracy of their predictions. They can define benchmark vessels for graphical comparison on resistance, power, and propulsor efficiency, while vessel category 'confidence lines' can be used to set down historical 'best case' minimum drag and power limits.

Videotel launches Flag State Administration software

http://videotel.com

Videotel has launched webFSA, a software that may be used to assist with VIMSAS (Voluntary IMO Member States Audit Scheme) audits and with training and monitoring of class, non-exclusive surveyors and in-house surveyors.

The system offers computer-based and/or video training for an individual surveyor or for a whole office. Participants can then take an online test, anytime and anywhere, for which the results are available immediately.

webFSA provides access to a surveyor's audit capabilities, which can be useful in assigning tasks.

Scheduled reports may also be generated and e-mailed automatically, and results of the audits fed back to the IMO.

"Videotel webFSA is an extremely powerful, highly secure, on-shore records management programme, comprising of an outstanding piece of software that offers a custom-made solution for Member States," says Nigel Cleave, CEO of Videotel Marine International.

"Since Videotel was established 40 years ago we have worked closely with the IMO and Member States to understand the specific needs of the regulatory side of the industry and to provide training and administrative support to simplify the compliance process. The time saved by a Member State using webFSA is significant."

"Working from a central database makes operations run smoother for everyone. This simple-to-use system saves time tracking surveyor training and processes audits quickly."

The Videotel system covers a range of Flag States

SHIPFLOW 5.0

www.flowtech.se

FLOWTECH International has released the latest version of its ship hydrodynamics design software, SHIPFLOW 5.0.

Users now have additional tools to simulate a viscous free surface and can work within the same environment for the whole hydrodynamic design and optimisation process.

The viscous free surface is simulated using a Reynolds-averaged Navier-Stokes (RANS) method. This functionality has been added to the XCHAP module.

The new version of SHIPFLOW Design is based on Friendship Framework 3.0, so users no longer need to switch programs in the middle of the work process but can stay within the same user interface for the complete hydrodynamic design and optimisation process.

EasyRisk Manager incorporated into Synergi Life

www.dnvsoftware.com

DNV Software has incorporated its risk management tool EasyRisk Manager into its Synergi Life application.

The software provider, which is part of Det Norske Veritas (DNV), says that the move represents part of its overall effort to offer one complete web-based solution for managing operational, project and enterprise risk.

Synergi Life is a risk and QHSE (Quality, health, safety, environment) management application which DNV Software says can provide a real time snapshot of a company's risk picture by managing non-conformances, incidents, risk analysis, audits, assessments, and improvement suggestions.

It covers workflow processes such as reporting, processing, analysing, corrective actions, communication, experience transfer, trending and KPI-monitoring.

"Our customers will be able to use the Synergi Life portfolio to manage all risk aspects of their business, from the detailed and technical risk identification and assessment to their overall business risk strategy," says Are Føllesdal Tjønn, DNV Software managing director.

DNV Software says that live reporting of risk information and the ability to aggregate risk with immediate access to underlying causes are two benefits of using Synergi Life's Risk Management module.

"One of the most important strengths of the extended risk management module in Synergi Life is that customers can build on their own best practices and processes that work well," says DNV Software product manager Carl Erik Høy-Petersen.

The Synergi Life software features a Risk Management Dashboard

CrewInspector for Lowland

www.crewinspector.com
www.lowland.com

CrewInspector, the Latvian developer of the online crew management software of the same name, has landed a contract to supply its system to Lowland International, a service provider for the maritime industry.

Based in the Netherlands, Lowland maintains a pool of seafarers from 20 different countries. The deal stipulates that all its offices will be integrated into a single system enabling crew management, payroll and customer invoicing.

Lowland can now recruit seafarers through a single online platform which redirects each application to the relevant office. Crew managers can also use CrewInspector to edit documents such as employment contracts or crew lists, while the payroll module calculates wages for both temporary and permanent staff.

"Lowland is one of the top names in the shipping industry with a long history in the market," says Andy Lipsberg, co-owner of CrewInspector.

"It was a challenging project and we learned a lot of new things from them. At the same time, we have gained confidence that with CrewInspector we can solve nearly any task within the crew management industry."

Mobile app for Newark Port

www.pnct.net

Port Newark Container Terminal (PNCT) reports that it is to deploy Versiant's Lynx mobile application to provide information to users of its facilities.

The new program will enable its users to verify container availability, view vessel schedules, review bookings and evaluate gate EIRs (Equipment Interchange Receipts) prior to arriving at the terminal.

Port customers will be able to access this information in real time on their smart phone or tablet device.

Access is available via the website, www.pnct.net. When connecting with a phone or tablet the program will recognise that the request is coming from a mobile device and the app will appear.

Speak to the marine industry worldwide!

Broadcast from: Essex, United Kingdom
Wanted: (Fuel Injection Equipment - All)
MAIN ENGINE MAK 6M 282, S/No: 29019,
850 RPM
3.2260A NOZZLES ELEMENTS 6 Pcs

Broadcast from: Piraeus, Greece
Wanted: (Engines,Diesel Pts)
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CONNECTING RODS 146673-23021 3 PCS

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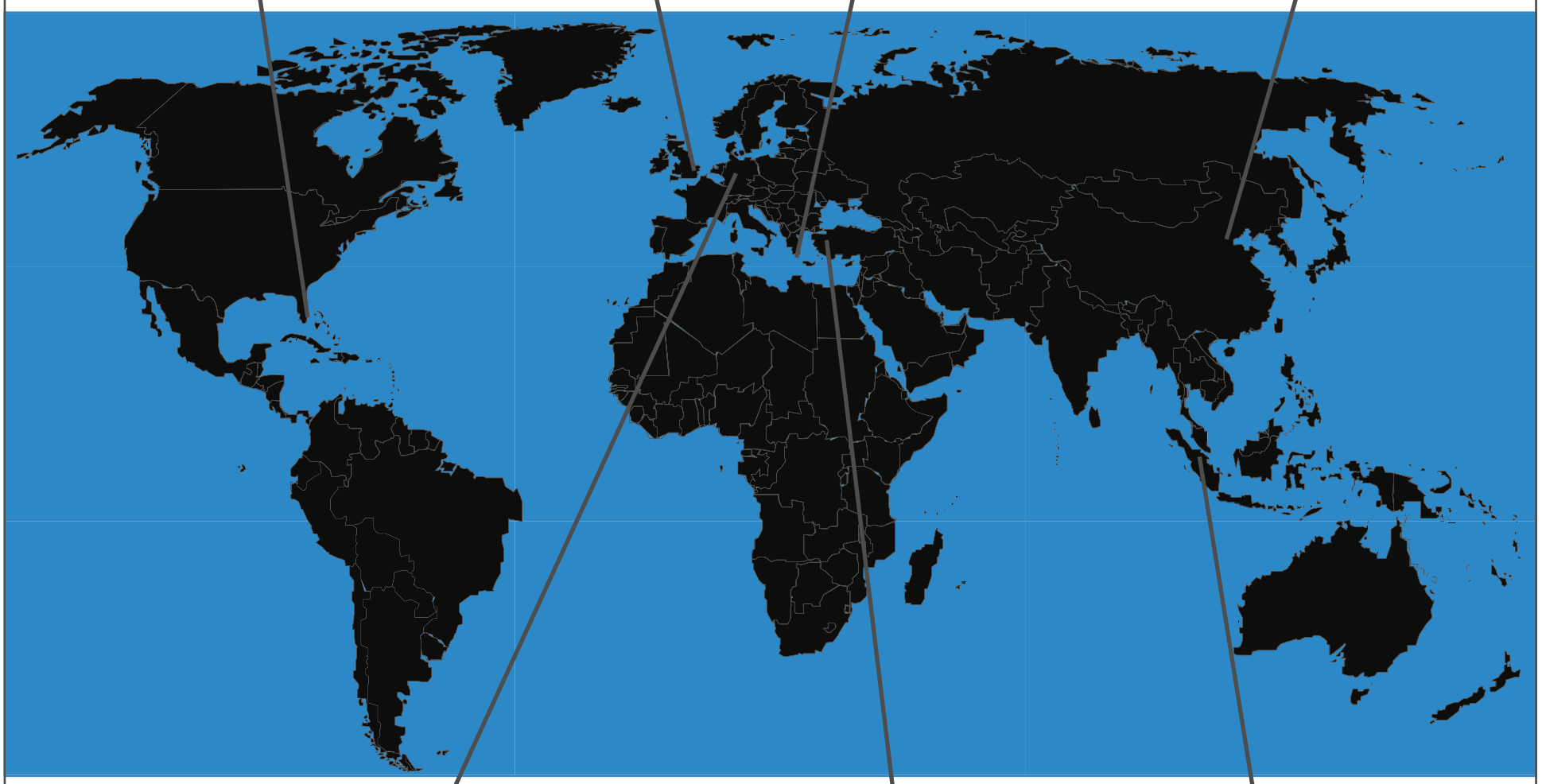
Wanted: (Pumps)
Looking for a Worthington Pump Model 5LRV-13 Vertical Pump. As this pump is no longer made, we would be looking for a used pump. Does not need to be in full operational condition if it could be reconditioned for temporary use. Thank you.

Broadcast from: Hebei Province, China
For Sale: (Engine Spares - All)
FOR SALE:MODEL:B&W 6L20/27
CRANK SHAFT 1PC SECOND IN GOOD CONDITION
Our part is good quality with low price.



Broadcast from: Leer, Germany
Wanted: (Boilers)
Req 082/2009e MV Emsbroker. We need 2pc of heating element for fresh water boiler.
Maker-STIEBEL ELTRON. part number 025344

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Engine type: MAK 8M552AK1) CRANKSHAFT
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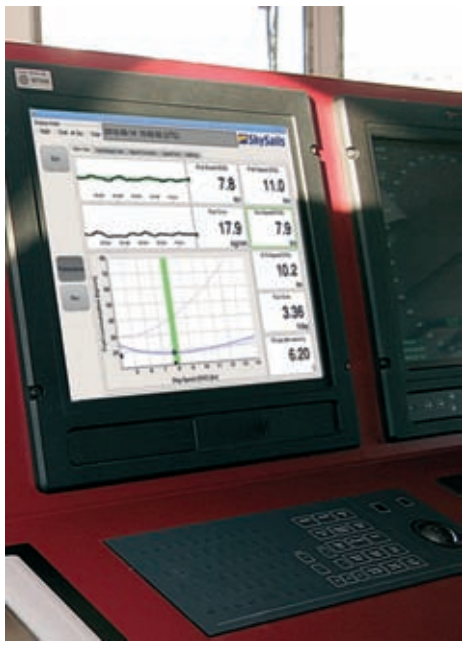
SkySails for Ardmore

www.skysails.info

Irish fleet operator Ardmore Shipping is equipping its tankers with SkySails' Performance Monitor, a system combining the SkySails kite system with onboard fuel and operational efficiency measurement software.



The SkySails Performance Monitor (not from an Ardmore Shipping vessel) provides fuel consumption data

Performance Monitor is a sensors-based computer system continuously collecting and analysing data about the ships' conditions and the circumstances in which it is operating. Its German provider says that by providing real-time onboard and onshore data, it aims to deliver the necessary insights to improve a ship's operational efficiency.

"A vessel's fuel consumption heavily depends on a range of factors, including operating conditions such as waves, wind and load, which can change dynamically during sailing," notes Stephan Wrage, CEO of SkySails.

"Whether the master and owners are looking for the most profitable speed, the most economical speed or the ETA speed for just-in-time arrival, our Performance Monitor collects the data and provides the real-time analysis that helps them to find the optimal operational settings, such as speed and trim."

Based in Cork, Ardmore Shipping operates a fleet of seven product and chemical tankers, and expects to take delivery of three more by next January.

Ardmore ships will use the system to improve efficiency

"Applying a new technology to improve fuel efficiency is one thing," says Anthony Gurnee, CEO of Ardmore Shipping, "but there is also a lot to gain in terms of operational optimisation."

"We believe that our seafarers and team ashore are the ones who drive operational excellence. With the SkySails Performance Monitor we now have the perfect tool in place to give them the critical data and decision support essential for their daily work."

Over 2,000 on Boatracs BTConnect

www.boatracs.com

Boatracs, a Californian satcom provider, has announced that over 2,000 vessels are now being managed with its BTConnect web-based vessel tracking and fleet management software.

BTConnect combines visual monitoring of vessel positions on an interactive map with location-based two-way messaging and reporting. It can be used with the OmniTRACS, KVH mini-VSAT and Iridium satellite networks.

Launched to the maritime industry in North America in early 2012, the fleet management platform introduced a shore-side user interface that is web-based for access to fleet-wide data from any computer, tablet or smart phone.

The shore-side software offers a single display that combines automated position reports with such features as route planning, map overlays, custom landmarks and historical vessel positions as well as two-way messages, logs and reports.

Positions are included on every ship-to-shore communication sent so fleet managers know what and where events occur. A notifications tool can automatically route messages and logs to designated departments: billing information can go to accounting while safety information goes to HSE and vessel information goes to engineering.

An optional vessel side application is available for captains to receive and send messages and logs to facilitate the collection of critical vessel data.

"The adoption rate of this new product has been tremendous," said Irwin Rodrigues, president and CEO of Boatracs.

"Signing up over 2,000 vessels in just over a year underlines the value users are receiving from BTConnect as a shore-side fleet management solution."

"BTConnect is being used by maritime operations ranging from a single vessel to 100-plus vessel fleets and customer feedback has been outstanding on the ease of use and access to operational data, demonstrating the broad range and versatility of its features."

Singapore puts $62M into maritime R&D

www.mpa.gov.sg

Singapore is going to invest S$77 million ($62M) to support maritime technology R&D, raise the sector's productivity and develop its manpower, via a number of newly launched initiatives.

The Maritime Innovation and Technology (MINT) Fund will receive S$50 million ($40M) over the next five years of the programme, originally established in 2003 for a 10 year period backed by S$100 million to support the development of maritime technologies by universities, research institutes and companies in Singapore.

The Maritime and Port Authority (MPA) will also introduce a new S$25 million ($20M) Productivity Programme under the Maritime Cluster Fund (MCF), to co-fund initiatives like automation and business process re-engineering.

Finally, the MPA will additionally set aside S$2 million ($1.6M) from the MCF for a new Global Internship Award over the next five years.

High-achieving undergraduates from the National University of Singapore (NUS), Nanyang Technological University (NTU) and Singapore Management University (SMU) will be offered a fully-sponsored maritime-focused internship, comprising both local and overseas components.

Those initiatives were announced by Tharman Shanmugaratnam, Singapore's Deputy Prime Minister and minister for Finance. They will be rolled out by the Maritime and Port Authority (MPA).

"Maritime is an important part of Singapore and contributes some 7 per cent of Singapore's GDP," said Lam Yi Young, chief executive of MPA.

"MPA is committed to working in partnership with the industry and institutes of higher learning (IHLs) in developing Maritime Singapore and are pleased to work with the industry and IHLs on the new initiatives and investments in maritime R&D, productivity and manpower development."

Bahraini contract for Autoship

www.autoship.com

Canadian software company Autoship Systems Corporation (ASC) has announced that Arab Shipbuilding Repair Yard (ASRY) of Bahrain is to implement two programs from its CAD/CAM package (Computer-Aided Design/Computer-Aided Manufacturing).

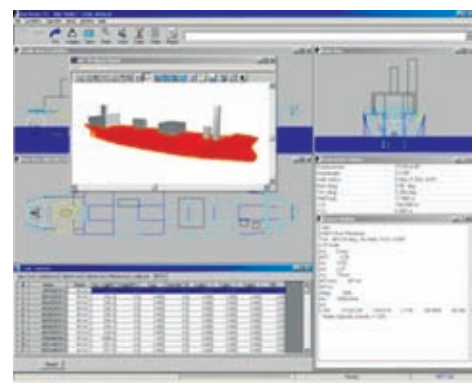
ASRY decided to equip itself with Autoship Pro, a hull design/surface modelling program, and with Autohydro Pro, a hydrostatics and stability program.

"I've previously used the Autoship System for various projects over the years, and when I came to ASRY one of the first things on my list was to purchase licences of Autoship Pro, Autopower and Autohydro Pro," said Sauvir Sarkar, ASRY's new manager of engineering and design projects.

"Now my team can develop new hull design projects and produce stability books for the ships that ASRY converts and repairs."

Based in Vancouver, ASC produces the Autoship System suite which consists of Autoship (hull design), Autopower (resistance & power prediction), Autohydro (hydrostatics & stability), Autoplate (plate expansion), Autostructure (internal structural design), and Production Manager (nesting & parts management).

It says that a new set of 2013 releases for the entire Autoship System suite is now available for its users.



ASRY will implement two Autoship CAD/CAM programs

adonis

the human touch

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MARITIME HR SYSTEMS 1988-2013

25

EXPERIENCE THAT MATTERS

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- Payroll • Time Cards • Budget
- Crew Planning • Course Scheduler
- Competence Matrix • Documents Handling
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KPIs: comparing, ranking and surprising

InterManager's KPI Project has now passed the milestone of having 1,600 ships entering data into the system. While this has allowed for the generation of interesting information on performance trends in the maritime community, InterManager secretary general, Capt Kuba Szymanski, told *Digital Ship* that there is still much work to be done

InterManager, the international trade association for the shipmanagement industry, says that it has now collected enough data through its KPI Project to identify significant trends – some of which are contrary to general preconceptions about shipping.

The association's secretary general, Capt Kuba Szymanski, says that these data prove for instance that gas carriers are much safer than commonly thought and that, contrary to the industry mantra, there is no such thing as a shortage of seafarers.

Launched in October 2011, the KPI Project invites ship managers and ship owners to upload a range of standardised performance indicators related to their vessels (developed by the Project partners) into its IMKE (InterManager KPI Environment) database.

The system can then use these standardised performance indicator data to calculate the Key Performance Indicators (KPIs) for the company.

Managers can use this information for self-assessment and for benchmarking, comparing their vessels against those of other fleets, using scoreboards, trends and breakdowns. All the statistics shown are aggregated and anonymous to guarantee participants' confidentiality.

Since the project started, 120 companies have entered the performance indicators of 1,600 vessels into InterManager's system, and 40 more are preparing to do so. While some ships have dropped out along the way, 1,000 vessels still entered their data in the last quarter.

With 6,000 data points collected, Capt Szymanski thinks that a critical mass has now been reached.

"We believe the data is robust enough now to start producing reports, showing trends, explaining to people what is really happening," he told *Digital Ship.*

"We might expect some surprises."

Surprising trends

InterManager's secretary general predicts that the KPI Project's findings will challenge general opinion and expert points of view.

"Until now, the shipping industry was based on the gut feeling of people around it," he says.

"You are an expert, you have been working for a shipping company or in the shipping industry for 30 years, therefore you are an expert. And it's very interesting when we ask experts to give us some definite answers, they actually struggle."

Take, for example, the average number of accidental deaths on board a vessel.

"Experts will not give you an answer. The KPI system is able to give you an answer," says Capt Szymanski, before admitting that: "OK, this answer will be blurred because we've got different types of vessels."

Because they are already used to working with self-assessment and benchmarking, tankers form the largest group of vessels submitting data into the KPI Project (41 per cent), far ahead of container carriers (28 per cent), bulk carriers (14 per cent), gas carriers (5 per cent) and passenger ships (5 per cent).

Capt Szymanski says that the system doesn't have enough data yet on passenger vessels and professional yachts. However, it can draw comparisons between the other types of ships, finding out for instance whether fatal accidents are more frequent on gas carriers or on container vessels.

"You immediately have results. And what we can see is that tankers are the safest," he says.

"Among the tankers, gas carriers are even better. And that is against the general knowledge in the public."

Noting that driving a car is 100 times more dangerous than being on board a gas carrier, Capt Szymanski adds that: "KPIs do provide information on this one."

According to Capt Szymanski they also show that there is no shortage of seafarers.

"The truth is different. There are too many seafarers. There are too many European seafarers," he says.

"But nobody wants to talk about that. It's taboo."

"KPIs are showing it, however. Not many companies are taking cadets now because they have enough, there is too many of them."

Once InterManager starts processing the data it has collected to produce reports, Capt Szymanski notes that "those things will start being tangible."

Self-assessment

The KPI system can also provide rankings in various data areas, with Capt Szymanski offering the example of the Lost Time Injury Frequency (LTIF) indicator, which measures the number of injuries on board a vessel, to illustrate the point.

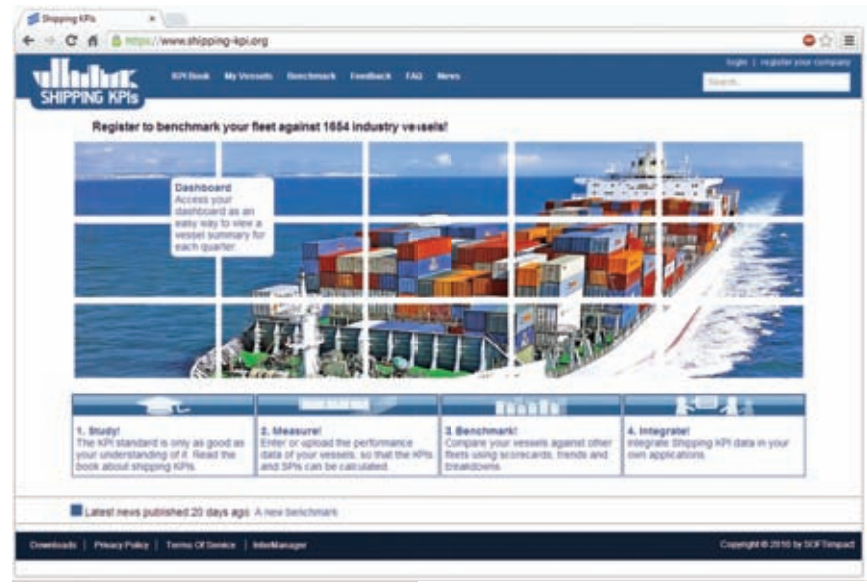
"We can tell that there is 10 per cent of the industry which is far, far better than the remaining 90 per cent, and that is extremely interesting to see because until now we didn't know what the distribution of the data was," he says.

"Now the owner or shipmanager is able to see for himself whether he is in the 10 per cent of the best companies or in the 90 per cent of the worst companies, or whatever. He can check that himself. That's the beauty of the system."

The KPI Project is web-based, free of charge, and anonymous. Capt Szymanski describes it as a self-assessment tool, which may provide useful advance warning before formal inspections.

"The data entered into the database is not seen by anyone but yourself, and no one knows that it is your data," he says.

"Why wouldn't you like to enter your data to see where you are, see that you are rubbish and improve?"



Participants in the project upload their data to the KPI portal, and can draw on a range of information for benchmarking and performance evaluation

Comparing it to a mirror, he notes that "KPI is actually designed to give you a very early warning about your own system."

The companies which have entered their KPIs can access all the anonymous data free of charge, and search for all kinds of indicators – usually related to safety and human resources.

Capt Szymanski lists the most frequent requests as being retention rate, emissions of sulphur and nitrogen oxides (NOx and SOx), vetting inspections, port state control (PSC) inspections, and conditions of class.

In a shipping company, different departments have different interests, he notes, adding that technicians will compare conditions of class while operations departments will go for port state control and vetting inspections.

Capt Szymanski also points out that "environmental benchmarking is very popular nowadays: NOx, SOx, that's very, very interesting and a lot of people go for it."

"We believe that the success of the KPI is that it is very detailed and very open. Anyone can have access to anything he's interested in," he says.

Participation

"The majority of shipping companies do not have KPI at all," notes Capt Szymanski, estimating that only 10 to 15 per cent of all shipping companies record this kind of data.

A portion of those have decided to keep their KPIs within InterManager's system so they can benchmark, but some still maintain a parallel system of their own.

"Big shipping companies still prefer to use their own KPIs. However, they have agreed to use ours as well," he says.

"I would say that they are using ours as a core and they are using theirs in the areas where they think we're not enough."

Capt Szymanski notes that, even at this stage, the majority of companies seem to struggle with the number of data points involved, saying that the InterManager system has got "too many."

"But we do not require every single PI to be entered, it is up to the shipping company," he says, adding jokingly that, for example, "it is very difficult for tanker people to measure the number of passengers."

The biggest complaint in using the system, according to Capt Szymanski, is that the process can prove time-consuming, and that shipping companies which have never done any form of self-assessment need to invent a procedure.

"How are they going to measure? Who is going to be responsible for that? That is a new task," he said.

"Once you get there, it's easy. To get there is not easy."

One way of improving the process is for shipping companies to work together to help each other to enter KPIs.

"One such example is Bergen, Norway," notes Capt Szymanski, explaining how nine Bergen companies have formed a 'MOPS', meaning Managing Organisational Performance in Shipmanagement.

"They get together and they say 'I've got a problem with this and this, what did you do?' And they say 'oh, this problem, we tackled it that way'."

InterManager is trying to create other MOPS clusters in Singapore, Copenhagen, Cyprus, and Greece – or "anywhere people believe that they would like to help each other and work together," says Capt Szymanski.

"It is easier for us to assist a cluster than assisting a single company. We will assist a cluster and the cluster will assist everybody else. That is the way forward. We would like our global system to become local."

Capt Szymanski cannot say when a first study would be published based on the KPIs collected by InterManager, but he predicts that it will be a major milestone.

"From a project of shipmanagers, KPIs will all of a sudden become a project of the shipping industry," he says.

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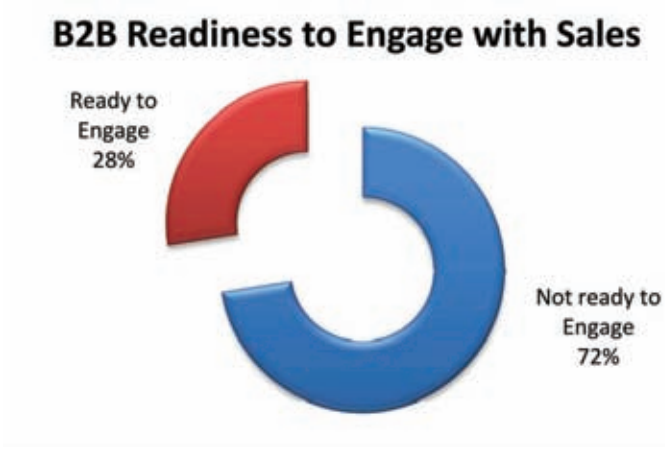
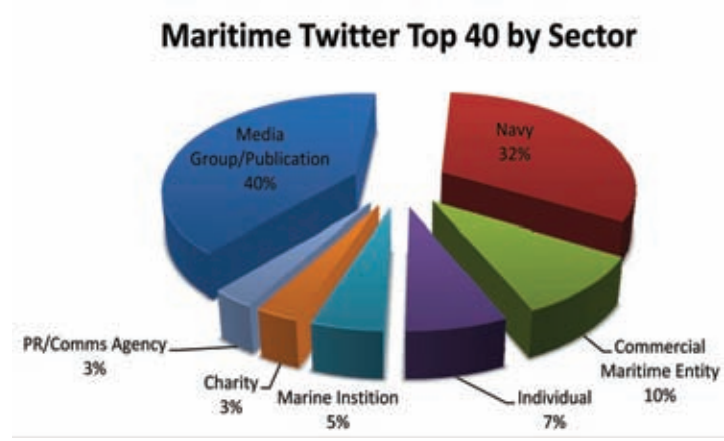
Social media in shipping – missing the boat?

Social Media is a hot topic, but what is the truth behind the hype? How can maritime businesses capitalise on opportunities whilst avoiding being caught up in the social media bubble, *asks Roger Adamson, Stark Moore Macmillan*





Traditional. Conservative. Risk averse. So runs the popular view of the maritime industry. Therefore in a time of economic and financial pressures with increasing regulation and falling freight and charter rates for ship operators – and tighter budgets to allocate amongst an army of maritime suppliers – one might assume that a subject such as social media would be nowhere on the radar.

Such an assumption though would be wholly wrong.

Ship operators and their suppliers are fully aware of how social media has come to dominate the marketing and business development agenda, and are as anxious as any other companies to understand how and where it can benefit them.

Stark Moore Macmillan has published a new report[1] on the role of social media in shipping, which aims to contextualise social media as part of wider digital trends within the maritime industry and identify scope for competitive advantage and business efficiencies, and featuring analysis of two high-profile maritime social media case studies; e-commerce provider ShipServ, and shipping giant Maersk Line.

The conclusion emerging from this research may be a surprise to some.

Social media bubble

In virtually every industry the buzz in the marketing department is around Twitter, Facebook and LinkedIn, Pinterest, Google+ and a host of other social networks. But for a discipline which claims to be able to provide more numbers, metrics and figures than almost any other, it is surprisingly hard to trust or contextualise much of it.

This is largely because the metrics the social media channels generate are measuring something which until a few years ago, no business had ever tried to put a value on – namely 'engagement'.

Now managers are being pushed to assign an ever larger share of budgets which deliver not leads, but 'likes', not repeat business but 're-tweets'. However, at a time when every business and every marketer is under increasing pressure to justify spend and demonstrate real ROI, it seems there is little tangible evidence to support the claims of those who believe social media is effective.

New research carried out by B2B company Pitney Bowes Software questioned both marketers and consumers across Australia, France, Germany, the UK and the USA about their behaviours and attitudes towards social media.

It showed that 70 per cent of marketing directors are more focussed than ever on social media, with a quarter of marketing budgets on average expected to be spent on new media activities in 2013 – the UK being the most bullish of all, allocating close to half (47 per cent) of budget totals.

Two-thirds (66 per cent) of those questioned claim they are doing the right thing and their campaign investment tactics are effective. But crucially, only one-third (33 per cent) of all those marketers questioned are confident that they can establish a link between social media spend and profitability.

This lends weight to the widespread belief that many marketers are in danger of being drawn in by a blind compulsion to follow the herd, creating a social media bubble similar to the 'dot.com' boom-bust investment bubble of the late 90s/early noughties.

Maritime attitudes

When it comes to social media the single most powerful call to action as far as consumers are concerned is via peer-to-peer recommendations: 68 per cent said they investigated online recommendations from friends or even made a purchase as a result (15 per cent).

Research conducted by Stark Moore Macmillan shows that within the maritime industry that sentiment is even stronger. Maritime companies trust the opinion of their peers above all else when sourcing and appointing suppliers, lending even more importance to company and product reputation.

But social media has the potential to expose brand and reputation to significant harm if programmes are not carefully specified and implemented, so in maritime establishing the real value and contribution of the programme to achieving overall business goals in the first place is of key consideration.

Historically the maritime industry has lagged behind others in its adoption of new marketing and sales technologies and strategies. There are still many companies where marketing and digital resources such as websites are dealt with at a purely tactical level, overseen by a Managing or other Director lacking in formal marketing expertise or training.

In very few maritime businesses is there strategic marketing input feeding into the business strategy at board level.

However, this is beginning to change. As a new generation of ship owners, managers and suppliers occupy senior positions, the potential and the necessity for improved marketing is being recognised.

Another key driver is the digital revolution and the attendant cost savings it offers. Online interaction via dedicated maritime ecommerce platforms is part of an industry wide shift to a digital world, encompassing everything from the new ECDIS mandate and the 'Glass Bridge', to Crew Payment Cards.

In addition, new high-bandwidth IP communications systems such as FleetBroadband and VSAT are now enabling the type of ship-shore communication and internet use unthinkable a decade ago.

With the advent of High Throughput Satellite networks such as Inmarsat GlobalXpress, Iridium NEXT and Intelsat EPIC the pace of change is set to accelerate further.

That novel ability of ships at sea and their crews to access bandwidth-hungry applications such as the internet is opening up new opportunities and markets.

The results of our recently published crew survey of communications usage

(see *Digital Ship* March 2013) offered clear evidence of the extent to which seafarers are using social networks whilst at sea and the extent to which they are prepared to pay for such access.

Currently 68 per cent of crew have access to communications at sea and 70 per cent are willing to pay for it. For ship owners and managers wrestling with issues of crew retention, welfare and training, and suppliers looking to reach the crew market with products and services, this increasing access to social media at sea has profound implications.

More than at any time in its history the maritime industry is receptive and eager to evaluate how digital technologies can drive efficiencies across their businesses, allowing them to become more profitable in the face of challenging business conditions. It is no surprise therefore that Social Media, an (apparently) low-cost digital marketing channel, is actively being considered by many.

But probe behind the superficially impressive growth statistics for social media usage in maritime and a very different story emerges. Our research confirms that a successful social media programme is unlikely to be a cheap option and unless implemented as part of an integrated, technology-driven marketing and sales strategy is unlikely to recoup its investment.

Twitter: the maritime conversation

The Maritime Twitter Top 40, a list of the most popular Twitter accounts tweeting about maritime issues was developed and curated by Coracle Online, a maritime training provider and creator of maritime digital products.

Between 2010 and August of 2012 the list was updated on the first of each month according to Coracle-measured influence, popularity, engagement and trust. The list demonstrated growth of over 400 per cent in two years so it's natural to assume that that for maritime businesses seeking to influence customers, Twitter offers considerable scope. Evidence however, does not support that.

Stark Moore Macmillan analysed the type of businesses in the Maritime Twitter Top 40 and their usage of Twitter across the quarter from June–August 2012 (the last quarter for which figures are available). The list consists almost entirely of maritime media groups and publications, Navy, Coastguard, maritime charities, major maritime institutions (eg IMO), individual journalists, PR companies and those tweeting solely about maritime piracy.

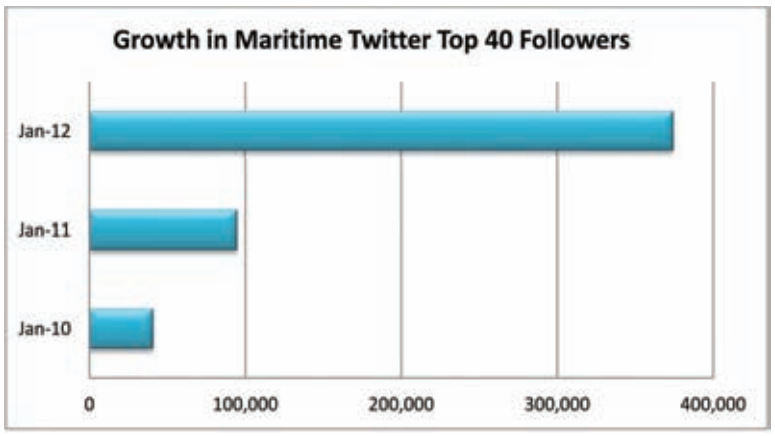
Commercial entities consistently represent under 10 per cent of the list across the three month period.

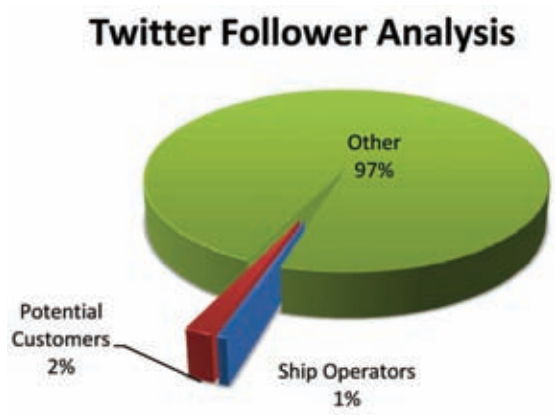
More disturbingly it appears that their potential customers are not the ones following them. Of 1200+ followers of one commercial account only around 2 per cent fell within a very broad definition of potential customers.

When it comes to 'connecting' with the maritime market it hopes to sell to, the company's Twitter feed is demonstrably providing a poor return on investment.

Maersk's Media Miracle?

Perhaps the most high profile of any recent maritime social media programmes





has been that of Maersk Line. In 2012 the shipping giant's social media campaign won at the European Digital Communications Awards and was held up as an example for other B2B brands to follow.

As part of our report Stark Moore Macmillan conducted an analysis of Maersk's campaign and results, comparing it to another maritime company, industry e-marketplace ShipServ.

Despite the positive coverage it takes little analysis to see that, while ShipServ can demonstrate a clear ROI, Maersk struggles. One of the most striking differences between the two campaigns is the attitude towards social media within the marketing context.

Although ShipServ's campaign had a major social media element, it was only part of a far wider digital marketing strategy. Maersk's approach is diametrically opposed to this.

Claiming that social media is most definitely 'not marketing' and attempting to run it in isolation is short-sighted.

In many respects the Maersk campaign reflects a textbook example of how companies are encouraged to view social media, namely as a standalone cost centre which delivers unmeasurable benefits to the business.

At the opposite end of the scale ShipServ set out with clear and measurable objectives where they used social media channels as part of a far more strategic, technology-driven digital marketing programme to achieve. As a result ShipServ is a far more useful blueprint for maritime companies than the mighty Maersk.

More significantly Maersk is running the risk that its positive PR could backfire. Describing its social media programme investment of almost a million kroner as 'peanuts' suggests an alarming lack of insight, not only into the other businesses with which it shares the maritime space, but to employees, stakeholders and also the customers it hopes to serve.

There is a widespread and understandable belief that social media marketing somehow exists outside of established marketing ROI considerations. It does not.

As a result many maritime companies believe they require help devising a social media programme, when they don't yet have a basic company marketing strategy in place. All the evidence suggests that standalone social media campaigns are rarely successful: for social media to contribute real ROI it must be as part of a more sophisticated, digital and data-driven marketing approach.

In conclusion it is hard to recommend that any maritime company in 2013 assign any sizeable budget to a standalone social media programme, or a social media expert. However, where social media can make its most significant contribution is by focussing shipping and maritime companies on digital – the single most powerful and disruptive influence on their industry – encouraging them to analyse the emerging digital landscape, prepare for, and take advantage of it. **DS**

About the author
Roger Adamson *is chief executive of Stark Moore Macmillan, chairman of IMASMA (International Maritime Sales and Marketing Association) and co-chair of the Maritime Satellite Forum of the GVF.*

Reference
1 For more information on the 'Missing The Boat? A Comprehensive Evaluation of Social Media for Maritime Businesses' report, visit www.starkmooremacmillan.com to download the free whitepaper extract

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High time to replace noon reports

The technologies now available for the collection and transmission of shipboard data have created huge potential for improved management of operations and increased efficiency – relying purely on the information contained in traditional noon reports is no longer enough, *writes Esa Henttinen, NAPA for Operations*

It is a fact that does not need labouring; the shipping industry is facing difficult times. Economically times are tough and, with increasing environmental regulation in the industry, sustained high fuel prices and the green spotlight from outside the shipping industry growing stronger, all eyes are focused on fuel efficiency.

The 'eco' in 'eco-efficiency' is no longer entirely a reflection of ecological drivers, but rather mainly economic; reducing fuel consumption and increasing efficiency is now an essential tool in maintaining profitability and competitive advantage in today's tough market.

Finnish shipping company Bore has used improved monitoring and reporting to verify the effects of efficiency solutions. Photo: Bore

A financial premium for efficient vessels is increasingly being established - with lenders and the charter market being key drivers. Most charterers have always closely examined their fuel spend, speed and routes of the vessels they are considering, but that is becoming increasingly sophisticated and widespread.

For some this takes the form of only chartering vessels with a certain benchmark efficiency level, while others wish to scrutinise the voyage reports produced by the vessels to try and glean this essential data. However, under the traditional system of producing one noon report every 24 hours, many of these charterers are not getting the level of detailed information that they need.

As ship owners and managers come under more scrutiny over their fuel costs, environmental and safety credentials, more accurate and up to date data is being requested.

The good news is that the technology to collect more accurate data and send it onshore in real time is available and - according to NAPA research in 2012 (see *Digital Ship* December 2012 issue, page 24) - owners, managers and operators with a large numbers of vessels under their control are increasingly turning to electronic operational solutions that automatically communicate with shore-based offices; with data collected continuously and transmitted to shore at frequent intervals.

This data has the advantage of being easily analysed, compared against established performance and able to use normalising algorithms to remove the effects of wind, waves and other environmental conditions to provide accurate and easily digestible information about the vessel.

With the data regularly downloaded from vessels via an onboard internet connection it ensures that ship managers always have the most up-to date information on their fleets with which to create reports on the efficiency of vessels.

Additionally, this continuous ship to shore communication ensures that there is a system by which the shore-based offices can monitor that the vessels under their control are operating in the most efficient way possible.

Should, for example, an element of a vessel become more inefficient in its operation it is not just the crew of the vessel that are aware, but also the owner or operator of the vessel. This means that all those who hold a stake in the vessel being operated with the lowest fuel spend for its operating conditions can be assured that it is, at any time.

These systems also have significant benefits in measuring the effectiveness of any new technologies that have been fitted to a vessel.

When the Finnish shipping company Bore wanted to verify fuel savings from retrofit efficiency solutions on their Ro-Ro vessel M/V Bore Sea, a software based monitoring and reporting system was used to record improvements in fuel consumption.

By continuously monitoring the efficiency, speed, location and other contributing factors on board before and after the installation of these solutions it allowed shore-based Bore staff to measure the savings and how they were achieved.

This resulted in their establishing that the systems installed were effective in reducing fuel spend and allowed them to make effective business decisions regarding potential retrofits on other vessels.

Safety and regulatory focus

However, the issue of communicating the status of a vessel regularly between ship and shore extends well beyond the realm of eco-efficiency.

Reducing spend and CO2 and other emissions' output might be a hot-button topic to the industry right now but one thing will always remain an absolute priority for the owners and operators of a vessel - the safety of that vessel and its crew.

From this perspective, noon reports represent an increasingly significant vulnerability, as they cannot provide ship owners and managers with real time information either on safety or performance that can be acted upon immediately.

In a world where even a minor vessel incident can be on Twitter, blogs, YouTube or 24 hour news channels within minutes of it occurring the ability of an owner or operator to be absolutely aware of its fleet's status at that moment is growing ever more essential.

Choosing continuous communication between ship and shore gives those with the ultimate responsibility real time awareness of a vessel's location, the weather conditions it is facing, the speed it is travelling at and further data that can help to ensure that these vessels are operating to the safety and efficiency standards owners, operators, charterers and other stakeholders expect of them.

The benefits, when so considered, of having shore-based offices updated with shipboard information are therefore clear. What is also starting to emerge however is an increasing interest from regulators in ensuring the effective monitoring and control of vessels is in place across the industry.

Papers were presented at both IMO MEPC meetings in 2012 on the subject of monitoring while the European Commission has declared its intention to pursue mandatory monitoring, reporting and verification of vessel fuel consumption.

An EC statement in December, 2012 stated: "Monitoring of CO2 emissions and energy efficiency can build on data monitored on board of most ships and on documents which are already today required or available such as log books, bunker delivery notes or noon-reports."

"Building on these existing elements seems to be recognised by many stakeholders as a reasonable approach as the additional administrative burden for crews and ship-owners should be minimised."

However, as electronic solutions read data directly from fuel flow meters, consumption and emissions are monitored fully automatically and results are therefore visible in shipowners' offices all the time. In other words - more accuracy and less time and resource.

Existing technologies

Industrial installations and the aviation industry already face requirements for measurement and reporting and this is almost entirely electronic. Electronic measurement and storage of data is the sensible choice for these major industries, providing the accuracy and levels of detail they need to ensure they are operating within set parameters.

The technology is there for this to be accomplished by the shipping industry also, if the industry gets behind it.

At its heart, effective communication between shore-based offices that own and operate vessels and their fleets out on the oceans is absolutely core to ensuring a business involved in global shipping runs smoothly and profitably.

Every day we see new technological developments driving the industry forward and yet the industry standard on communicating vital information from the ships at sea that are the cogs in the machine of global trade has remained unchanged for decades.

When communication solutions are there that can bring enormous benefits to owners, operators, managers and charterers surely shipping, as the life-blood of world trade, should embrace it wholeheartedly.

The trajectory of the industry is seeing increasing pressure on owners and operators to provide more accurate measurement and reporting of daily bunker fuel consumption and emissions levels.

As industry data and communication come under greater scrutiny paper logbooks and noon reports are no longer the most effective means of communicating between ship and shore - and should be recognised as such. DS

About the author

***Esa Henttinen** is vice president of business development at NAPA for Operations. NAPA is a provider of ship design and operation solutions used to improve safety and eco-efficiency from the build process through the operational lifecycle of a vessel, including 3D modelling of ships and ship performance analyses.*

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GNS buys HanseNautic

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Global Navigation Solutions (GNS) has acquired HanseNautic, a German provider of navigational products and services, for an undisclosed amount.

GNS was formed last November when Mike Robinson, former CEO of the UK Hydrographic Office (UKHO), bought the Thomas Gunn group with the support of Phoenix Equity Partners.

The London-based company provides both paper and digital navigation services, as well as developing electronic navigation aids for commercial shipping.

GNS says that it hopes to prove attractive to shipping companies looking to extract greater value from their chart procurement and chart management strategies.

CEO Mike Robinson said: "We are looking forward to working with the HanseNautic team to provide increasingly sophisticated navigational products, services and support for their customers in Germany."

Bjorn Woge, managing director of HanseNautic, added: "Our customers increasingly require global support for their navigational requirements and we are delighted to be joining GNS, with its strong investment backing, to develop the next generation of e-navigation products and services."

News of this acquisition was quickly followed by an announcement from the company's Thomas Gunn division confirming that the latest version of its onboard navigation data management system, Voyager 4, had completed successful sea trials and was commercially launched on May 1.

Mike Robinson, head of GNS

The Voyager 4 system was commercially launched in May

The maritime services company says that this new launch will make it the only chart updating tool to include global Navarea Warning information.

Voyager 4 also provides a route-planning tool to identify, update and download information needed for a vessel's voyage, as well offering a number of other time-saving applications.

Thomas Gunn says it installed the beta version of the system on more than 20 ships around the world to test it in live environments. Trials involved UASC's Hatta working out of Bahrain, Finner Shipping's Red Fin, currently in Egypt, and Gulf Offshore's Highland Eagle based in Aberdeen.

"Sea trials are an essential stage of our new product development programme. The Thomas Gunn Voyager team is made up of highly experienced mariners, navigators and technical experts, but at the end of the day it's the experience on the bridge that determines our products' success," said Mike Bailey, former captain and marine superintendent, now head of product development at Thomas Gunn.

"Sea trials feedback is essential in guaranteeing reliability, ease of use and ensuring Voyager is designed and developed to meet real-life operational requirements."

"This latest Voyager release is even better than ever, including some excellent new services such as our new Navarea Warnings service and the Admiralty Vector Chart Service (AVCS) and Admiralty Information Overlay (AIO) viewer, making Voyager the most comprehensive British Admiralty updating service on the market today."

Testing of the service aboard seagoing vessels has also provided the opportunity for the company to gain feedback on how customers would prefer to buy the additional modules and time-saving applications that are included in the new version, Mr Bailey adds.

"(This) is helping us create innovative new purchasing options that really appeal to our different audiences," he said.

Thomas Gunn claims that Voyager 4 is the only system that provides a 100 per cent complete BA Chart update service. It also includes a free Vessel Management Service to help ship owners and ship managers manage information and ensure compliance across the fleet.

IBS contracts for Raytheon

www.raytheon-anschuetz.com

German navigation system manufacturer Raytheon Anschütz has landed contracts for the delivery of nine Integrated Bridge Systems (IBS) to new-build vessels for offshore operations.

It will supply the IBS to six Platform Supply Vessels (PSV) built at Fujian Southeast shipyard in China. The IBS consists of radar and chart radar systems, two ECDIS, conning, gyro compasses, autopilot and main navigation sensors.

It will also deliver IBS to newbuilds for Norwegian shipowner BOA Offshore, which has placed orders for two Multi-Purpose Supply Vessels (MPSV) at the Chinese Mingde shipyard.

The scope of supply covers radar, chart radar, ECDIS and conning for the fore and aft bridge as well as gyro compasses, adaptive autopilot and a full package of navigation sensors and radio communication equipment.

Finally, the company's wholly owned subsidiary Raytheon Anschütz Singapore will deliver IBS and communication systems to a 4,500 dwt Platform Supply Vessel built at Keppel Singmarine Brasil shipyard.

The navigation bridge will be equipped with Synapsis radar and chart radar, Synapsis ECDIS, NautoPilot adaptive autopilot systems as well as a triple Standard 22 gyro compass system and further navigation sensors.

Raytheon Anschütz Singapore will also supply radio communication and broadband equipment, and CCTV.

FleetView Online upgraded

www.transas.com
www.fleetviewonline.com

Transas Marine has upgraded its FleetView Online web-based SSAS-tracking service to include an improved user interface, object overlay and chart navigation controls.

FleetView Online processes and distributes SSAS alerts, displays a vessel's position, and shows weather data over a chart area where a vessel is located. It operates with Transas ShipGuard Inmarsat D+/ISAT M2M terminals and a range of Inmarsat C and mini-C terminals.

In the new version, Daily Position Report (DPR) messages can be forwarded in NMEA-based format, which should make it easier to integrate this data with a shipping company's monitoring program.

Also, a newly developed "vessel on map" functionality shows ships' locations, SSAS alerts and track history for the previous week.

Previous toolbars have been removed and navigation controls added to the chart display. Several visual changes have also been made, with a 'Google' style map slider bar being added, allowing scaling through the charts in three ways: zoom slider, mouse wheel scroll or manual selection from lower task bar.

The vessel information panel on the left can be hidden, providing a full screen chart display for presentation views. Ports icons are shown directly on the chart display, with additional information listed in the port information window.

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www.km.kongsberg.com

AVCS now on NavStick

www.navtor.com

Norway-based e-navigation company Navtor has signed an agreement with the United Kingdom Hydrographic Office (UKHO) to integrate the Admiralty Vector Chart Service (AVCS) on its NavStick USB device.

At present, seafarers receive AVCS via mailed CDs, with updates also mainly being delivered through the post. Using the Navtor system they can have their charts on a USB device and get updates online.

Willy Zeiler, business and communication manager at Navtor, explains: "The NavStick USB device gives mariners access to global AVCS coverage and all licences for predefined operation areas."

"Installation onto the ship's ECDIS is simple, while Navtor's online program NavSync allows the user to retrieve AVCS updates with just a few clicks when the NavStick is connected to the bridge computer."

The deal will also see all Admiralty Digital Publications made available on the NavStick, with Neil Holloway, UKHO global account manager, commenting that: "At the UKHO we rely on our distributor network to go to market with the Admiralty products and services, so combining forces with Navtor will enhance the way we offer AVCS to mariners."

"Getting AVCS distributed in an easier way is important, but what's more important is being able to offer the market a far easier way of handling the 'total solution' package of all Admiralty products, including Admiralty Digital Products (ADP) and Admiralty Information Overlay (AIO)."

"Now we have an efficient method to support a huge number of vessels, especially those who may be reliant on unofficial private chart data. This new delivery approach for AVCS will definitely be a solution for them to transfer to authorised and official ENCs."

The Navtor NavStick can be used to deliver Admiralty ENCs

Comark's MDU19 PC shock-tested

www.comarkcorp.com

Comark Corporation has announced that the latest version of its MDU19PC rugged computer has passed shock testing.

The MDU19PC is an all-in-one display and computer designed and tested to meet military requirements for shipboard applications including propulsion, machinery control, and ECDIS navigation.

The panel is NEMA 4 rated (weatherproof) and is available with options such as touchscreen, Intel core i5 or i7 processing, speakers and front access USB ports, says the American manufacturer.

The MDU19PC is built with an LED backlit display and is part of a family of PCs meeting military standards.

ChartBrowser 2.0

www.chartworld.com

Digital chart supplier ChartWorld recently launched ChartBrowser 2.0, an ENC (Electronic Navigational Charts) ordering tool which automates the updating process.

ChartBrowser is a free of charge onboard solution supporting all official ENC formats from UKHO, Primar and IC-ENC, as well as the ACES (S)ENC format for eGlobe, S-ECDIS and Imtech ECDIS.

ChartWorld says that it can be used to make sure that the ENC inventory on an ECDIS-fitted vessel is up to date, as per regulatory requirements.

Since it can be used in combination with every ECDIS model in the market, it can prove particularly useful for shipping companies with several ECDIS makers in the fleet, says the supplier.

"Everybody is talking about paperless navigation but if it takes more time to order charts and manually install update CDs than correcting paper charts there is something wrong in your ENC work process," says Stephan Dimke, sales director of ChartWorld.

"With ChartBrowser we optimise ENC ordering and automate the updating process."

The open software architecture of ChartBrowser allows for integration into existing shipping company ERP systems. ChartWorld adds that shipping companies can review and accept every order from their vessels in real time.

Change Shift added to Totem Plus ECDIS

www.totemplus.com

Totem Plus has added a new Change Shift module to its ECDIS system, which aims to clarify the existing navigational situation during a shift handover to prevent accidents.

The procedure should be implemented at the beginning of each shift on the bridge by the OOW commencing a watch, after which the Change Shift test should give the OOW an overview of the system functionality to allow them to ascertain whether the system is ready for the shift period.

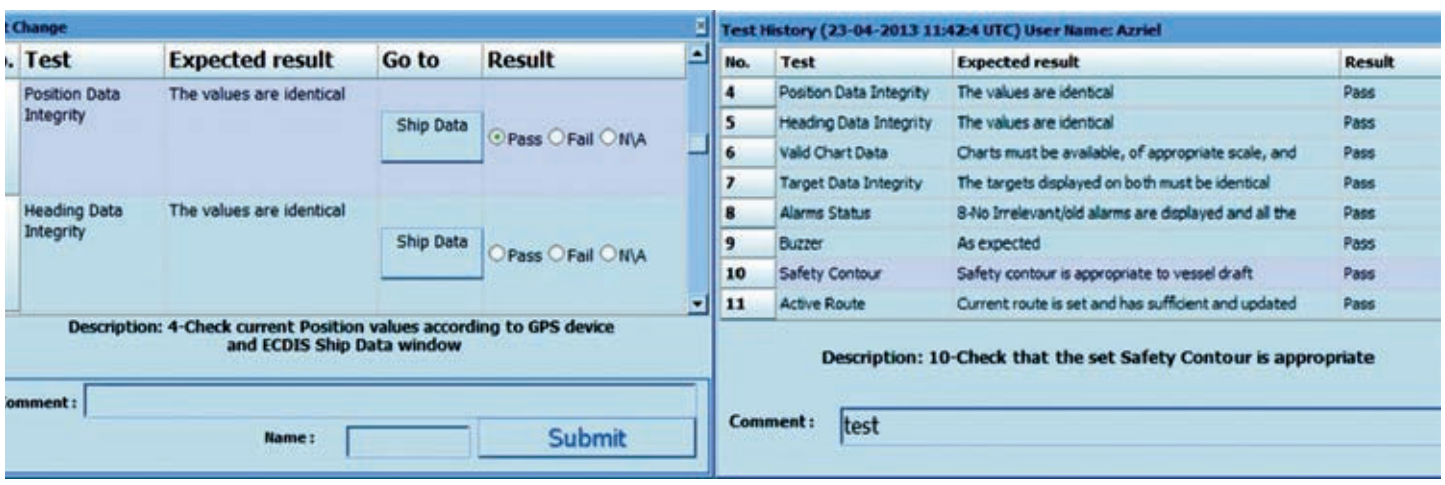
A set of a dozen tests is carried out during a period of one to three minutes, covering items such as GPS position verification, safety contours, checking safe course and the presence of updated charts for the next watch.

The procedure also contains shortcut buttons, with hints and assistance available where required.

Documentation of all checks is stored in log files, including the date, time, officer's name and a short summary of the results of each test. The log files are available for replay and review after the test and can be viewed by Master or superintendent, for example.

"This innovative procedure will increase safety onboard and will help to prevent fatal mistakes caused when the officer who just began his watch is unaware of the exact set up of the equipment, possible offsets or different safety contours," said Maya Dagon Saffer, Totem Plus.

"The tests are designed to prevent erroneous decisions based on wrong interpretation or unawareness of the current setup."



The Change Shift test aims to ensure a safe handover of navigational responsibilities

Analyzer 3.1

www.sevencs.com

SevenCs and L-3 Oceania have released a new version of their ENC validation tool: Analyzer 3.1.

It includes the latest standards for ENC, IENC and AML production, while the setting dialogue now allows one custom rules set to be shared between multiple instances of ENC Analyzer running on different machines.

Editable tolerances allow the user to set the precision for a range of checks. In addition, ENC Analyzer provides the option to include/exclude the validation of the UOC 3.0.0 SCAMIN policy.

The optional HVC module has been upgraded to perform horizontal and vertical consistency validation. It allows the producer to check for the consistent encoding of features between adjoining cells and overlapping cells of different scale bands.

Bjoern Roehlich, sales director of SevenCs, says: "The all new Analyzer is again a benchmark in ENC validation. Our long experience and the constant improvement of the product during the past ten years is the reason why we now have a market share of more than 80 per cent."

Bourbon chooses PC Maritime ECDIS

www.pcmaritime.co.uk
www.bourbon-online.com

French fleet operator Bourbon has ordered dual Navmaster ECDIS from English supplier PC Maritime to equip several of its newbuilds.

Nine IMR (Inspection, Maintenance & Repair) vessels are to be equipped. Destined for the offshore oil sector, they belong to a series of ten ships being built for Bourbon by Sinopacific Shipyard in China.

The first ship in the Evolution 800 series, the Ungundja, has been in operation since the end of 2011 and has not been fitted with PC Maritime's Navmaster ECDIS. However, the other nine have been or will be.

Delivered in September 2012, Bourbon Evolution 802 was the first to be fitted with PC Maritime's dual ECDIS and it now operates off the coast of Nigeria. Her crew are using PC Maritime's familiarisation training course on board to achieve type-specific certification, and five officers are already formally certified, says the Plymouth-based supplier.

Delivered in late January, Bourbon Evolution 803 is on sea trials and due to operate soon in Malaysia. In all, four Navmaster ECDIS have been supplied and another five are to be fitted on the other ships that will be delivered this year and in 2014.

Bourbon Evolution 800 project manager Arnaud Rampal said: "I liked the simplicity of Navmaster ECDIS and we are having good support from PC Maritime."

PC Maritime is also supplying Navmaster ECDIS to Bourbon's latest Platform Supply Vessels (PSV), the 15-ship Liberty 150 series also being built in China. The first vessel will be delivered in the second quarter this year.

Bourbon's newbuilding managing director Olivier Daniel said: "Having ECDIS on board our vessels is a smart move. It makes sense to use this equipment especially now that the availability of charts has improved."

"Our reasons for installing Navmaster ECDIS are firstly to enhance navigation safety and secondly to improve the management of charts on board."

Nine Bourbon newbuilds are to be equipped with the ECDIS system

Transas VTS in Malaysia

www.transas.com

Transas Marine Pacific is to supply and install vessel traffic management systems at three locations in Malaysia.

The first contract, for the Pengerang Oil Terminal in Johor, was awarded to the company, together with its local partner Global Teamwork, by Dialog Pengerang.

Based on Transas' Navi-Harbour VTS software package, the system includes marine sensors such as Radar, AIS, CCTV cameras and hydro-meteorological sensors which will provide a real-time navigational picture to VTS operators.

Transas says that this installation will assist the Pengerang Oil Terminal in meeting ISPS requirements. The facility will be one of the first independent LNG trading terminals in Asia, which will allow multiple LNG users to store and trade the product.

A further two contracts for the installation of Vessel Traffic Management Systems (VTMS) in Tawau Port and Kimanis Bay Terminal were agreed in cooperation with Transas partner KASI Malaysia.

This deal covers Transas' Navi-Harbour VTS software package, radars, AIS base stations, CCTV, VHF direction finders, and workplaces.

Together with KASI, Transas had already installed Vessel Traffic Management Systems in Sapangar Bay Container Terminal, Sandakan and Lahad Datu ports.

FURUNO ECDIS training in Odessa

www.furuno.co.jp
www.omtc.com.ua

Odessa Maritime Training Centre (OMTC) is now providing FURUNO type-specific ECDIS training to navigators.

The Japanese company recently announced that the Ukrainian facility has joined its NavSkills network of training centres.

Under the NavSkills agreement, Odessa Maritime Training Centre will accommodate six training workstations, four ECDIS FEA-2107 workstations and two FMD-3200 workstations, with three instructors certified by FURUNO to conduct FURUNO type-specific ECDIS training.

OMTC was established in 1998, and was certified and approved by Det Norske Veritas (DNV) the following year.

The NavSkills concept ensures that the training course is conducted in the same way, with the same content and duration and using the same teaching methods as employed by FURUNO in its own training centres, in Denmark and Singapore.

FURUNO is able to provide type-specific ECDIS training in Germany, Turkey, Greece, Singapore, India, The Philippines, China, Ukraine and Denmark. It is working on establishing similar co-operations with training centres in the USA, Europe, Africa and Asia.

The Ukrainian facility is now open. Photo: Lars HB Ipsen

Tokyo Keiki familiarisation training added by ECDIS Ltd

www.ecdis.org

UK based ECDIS training company ECDIS Ltd has launched a new course for familiarisation on Tokyo Keiki ECDIS.

The company notes that this marks the completion of the first stage of course development, and that, as a training partner, ECDIS Ltd will subsequently progress to delivery of MCA and DNV approved Generic and Nautical Institute accredited Type Specific (Equipment Specific) training on Tokyo Keiki ECDIS software.

"We are delighted to announce our partnership with ECDIS Ltd, a company known for its well trained staff and their electronic navigation experience," said Tokyo Keiki, in a statement.

"Even with the IMO vessel specific installation deadlines still to enter into force, many ship owners have already chosen paperless sailing and for us it was a natural choice to partner with ECDIS Ltd, which is something that will greatly benefit owners, ship managers and undoubtedly officers on the bridge today and for many years to come."

Mark Broster, managing director of ECDIS Ltd, is glad that this new partnership represents "another milestone in our company, that we have partnered with such a large and well respected ECDIS manufacturer."

"However, our aim remains the same," he adds, "to represent all ECDIS manufacturers in order to facilitate the highest standards of ECDIS training ensuring that the mariner is fully aware of all aspects of ECDIS and its capabilities as a navigational aid for the bridge team."

In other news, ECDIS Ltd also reports that it has recently delivered its 10th Management of ECDIS course to senior members of the Irish Naval Service.

The Management of ECDIS course is designed for advanced and experienced users of ECDIS, or those who are now in a position of quality-controlling the standards of their fleets' navigation and making purchasing decisions. ECDIS Ltd says that the course provides 'top level' information to fleet managers looking to make a transition to digital navigation.

"It was a pleasure to work with a military organisation who are looking to transfer their traditional skills into the digital age," said Mr Broster

"It is our aim to not only help take their understanding of 'wider' ECDIS aspects to the next level, but also to help take them through every aspect of the transition - from procedures, to charting options, to equipment."

"It is great to see that the Irish Naval Service are seeking to take their ECDIS knowledge to the highest and safest level, by utilising ECDIS Ltd as part of their training solution, and as their consultant."

Lt Paul Hegarty, navigation standards and database officer for the Irish Naval Service, also noted that "what came across during the course was the depth of knowledge the team at ECDIS Ltd have on all navigation systems and charting options available to mariners."

"The course offered a valuable insight into the management and quality control procedures required in implementing new navigation systems within an organisation."

AIS touch-screen black box

www.cobham.com

Cobham SATCOM is opening its order book for its new SAILOR 6280/81 AIS, a 'black box' featuring touch screen operation through the SAILOR 6004 control panel. The first delivery of this new Automatic Identification System (AIS) is expected in June.

Cobham says that the black box transponder can be installed wherever is convenient and connected via LAN (using the sophisticated Lightweight Ethernet protocol) to the SAILOR 6004 Control Panel.

The touch interface works the same way as smartphones or tablets. Users can activate a function by tapping the corresponding icon on the display.

The AIS can operate as a standalone navigation aid or as part of an Integrated Navigation System (INS). Both the SAILOR 6280 and 6281 feature the ThraneLINK application interface, designed to ease servicing via the Thrane Management Application (TMA). There is also a built-in diagnostic system.

Both versions come with the SAILOR 6004 control panel and an active GPS antenna. They are designed for all commercial vessels required under SOLAS to carry Class A AIS.

The SAILOR 6280 and 6281 systems work with both GPS and GLONASS and support messages for Long Range Satellite tracking on channel 75 & channel 76.

The AIS system will be available from June

Resolve Maritime Academy orders engine room simulator

www.transas.com

Transas says that Resolve Maritime Academy (RMA) has ordered its Full Mission Engine Room Simulator for its new simulation facility located in Fort Lauderdale, Florida.

The Techsim 5000, DNV approved, Class A equipment will be used to train marine engineers both on operational and emergency procedures.

The simulator system combines real controls and Techsim 5000 touch screen technology. It can simulate multiple engine platforms (Diesel Electric, Slow Speed Diesel, Medium Speed Diesel, CODOG, etc).

Resolve Maritime Academy, a wholly owned subsidiary of Resolve Marine Group, mainly offers simulation training programmes for cruise operators, though its client list also includes companies in the tanker, bulker, and offshore sectors.

Dave Boldt, simulator group manager at the academy, said: "Having the ability to combine the engine and bridge simulators for integrated operation, both on the latest Transas platforms, gives Resolve Maritime Academy the ability to train vessel crews as a complete team."

"This includes real world communication issues and realistic scenarios that involve the entire ship operation, plus considerations and decision-making problems that cannot be simulated without having the bridge and engine team working together."

Veripos positioning for seismic vessels

www.veripos.com
www.dolphingeo.com

Veripos has won a three-year deal to supply satellite positioning services to Dolphin Geophysical, a Bergen-based contractor which operates a fleet of seismic vessels.

The contract covers four existing ships (Artemis Arctic, Artemis Atlantic, Polar Duke, Polar Duchess) and a fifth one (Sanco Swift) which is to be delivered later this year.

Those vessels will use Veripos's Apex2 and Ultra2 dual beam Precise Point Positioning (PPP) services employing both GPS and Glonass constellations supported by an NTrip internet-based correction service.

Associated onboard hardware for each vessel comprises triple Veripos LD6/LD2 modular receivers together with Verify QC processing software for real-time monitoring and control.

Kongsberg lands $50M deal to equip two seismic vessels

www.km.kongsberg.com

Kongsberg Maritime will deliver integrated navigation, Dynamic Positioning and back-deck systems for two Ramform Titan-class seismic vessels which Petroleum Geo Services (PGS) is having built at the Mitsubishi Heavy Industries yard in Japan.

The contracts, valued at more than US$50m, were signed by Kongsberg Maritime and Mitsubishi Heavy Industries after Norway-based PGS ordered a further two Ramform Titan-class vessels last October.

Kongsberg says that it will deliver 'Full Picture' packages for vessels three and four based on the systems supplied for the first two vessels, which are close to completion and expected to be delivered this year. Ramform Titan-class vessels three and four are scheduled for delivery in 2015.

The Ramform Titan-class vessel design includes an upgraded GeoStreamer based seismic package. To support that technology developed by PGS, Kongsberg Evotec, a subsidiary of Kongsberg Maritime, will deliver back-deck handling systems, hydraulic and winch systems and an integrated control system.

A specialised redundant seismic track system will be delivered as part of the Kongsberg Maritime K-Pos DP class 2 system and Thruster Control Systems, whilst navigation for Ramform Titan-class vessels will be carried out using the K-Bridge integrated system.

The PGS vessels are being built in Japan. Photo: PGS

Geir Håøy, president of Kongsberg Maritime, said: "Our 'Full Picture' seismic offering includes advanced vessel navigation and manoeuvring systems for efficient and secure transit and operations, a wide range of integrated seismic back-deck handling systems for improving operational safety and efficiency, together with specific technical solutions to enhance seismic acquisition."

"As a single supplier for such a wide range of innovative systems, we are in a strong position to support the expanding seismic market and are well positioned to capitalise on market investment in the coming years."

Jeppesen to distribute Indonesian ENCs

www.jeppesen.com/marine

Jeppesen has signed an agreement to distribute official Electronic Navigation Charts (ENCs) from the Indonesian Navy Hydrographic Office (DISHIDROS).

The Boeing subsidiary says that it can now provide ENC coverage for Indonesian waters, which encompass major Asian Pacific trade routes.

The Strait of Malacca, the main channel between the Indian and Pacific Oceans, is noted for its shallow waters, narrow passages and heavy shipping traffic.

"This is an historical agreement for Jeppesen and a significant development for our shipping clientele operating in these important Asia Pacific trade routes," said Michael Bergmann, Jeppesen's maritime industry director.

"It is our continuing goal to support the maritime industry with the best possible ENC coverage for major shipping routes worldwide. Strategic partnerships with hydrographic offices — such as this one with DISHIDROS — are instrumental in achieving this goal. We are grateful to the Indonesian Navy Hydrographic Office for its cooperation and partnership in this process."

New gyrocompass changeover system

www.teledyne-tss.com

Teledyne TSS has launched a new gyrocompass changeover system aimed at protecting navigation equipment against the danger of a sudden loss of heading input.

The system has been designed to automatically switch its throughput to that of another gyro should the principal one fail. It can be connected to up to four gyrocompasses so that navigation and positioning systems are DNV compliant.

The changeover system has been designed to ensure that equipment such as DP (dynamic positioning) control centres, ECDIS and voyage data recorders are never without a gyro input.

It consists of an enclosure for the retransmission circuits and up to two separate display units. The panels show the condition and performance of all gyros in use.

The system can switch automatically from one gyro to another, though it can also enable the manual changeover of gyro throughput if required.

The changeover system is suitable for use with Teledyne TSS Meridian gyro compasses but can also be used with other makes of gyrocompass that use the same data output formats (16 IEC 61162).

ChartCo for SeaSpan fleet

www.chartco.com

ChartCo has landed a contract with SeaSpan Corporation, which operates 71 container vessels, to fit its navigation data management system across the entire fleet.

The UK-based company says that it will be installing its full software suite, including PassageManager, and supplying paper and electronic chart updates to each vessel.

PassageManager allows the subscriber to plot routes, attach navigational products to those routes and then produce comprehensive passage plans combining products, port and route data, says ChartCo, adding that the software can be tailored to meet the varying demands of bridge procedures.

Raj Dewan, director of procurement & technical services at SeaSpan Ship Management, said: "We looked closely at a few good updating systems that are now available in the market and undertook exhaustive sea trials."

"ChartCo stood out as being the most comprehensive and easy to use. As we operate on a global basis with various crewing nationalities, usability was a vital consideration. ChartCo's software, support and broad scope of services are a perfect fit for our requirements."

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www.thedigitalship.com

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9月3日～4日ザ・キャピトルホテル東急（東京）にて

Technology, communications and training continue to play a major role in the development of Japan's shipping sector, with stakeholders needing to remain up to date with new technologies and strategies to ensure their operations are as efficient as possible.

In this regard we are happy to announce the launch of the inaugural Digital Ship Japan conference and exhibition. This event will provide you with an opportunity to discuss the latest developments in IT & communications with Japanese shipping companies and industry experts.

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以上を踏まえ、私たちはデジタルシップ・ジャパンのカンフェレンスと展示会の開催を発表します。このイベントは日本の船舶関係企業様や業界エキスパートの方々を対象にIT＆コミュニケーションの最新の展開について話合う機会を提供します。

Who are attending from shipping companies?

- Managing Directors
- CIOs, CTOs
- IT Directors/Managers
- Directors/Managers of Communications
- Purchasing Directors/Managers
- Fleet Managers
- Crewing Managers

船舶関連企業からはどういう方々が参加されますか？

- マネージング・ディレクター
- CIOやCTO
- IT関係のディレクターやマネージャー
- 広報通信関係のディレクターやマネージャー
- 仕入購買関係のディレクターやマネージャー
- フリート・マネージャー
- クルー・マネージャー

Who should exhibit and sponsor?

- Satcom Service Providers
- ECDIS Service Providers
- Fleet Management Solution Providers
- Safety and Training Solution Providers
- Marine Software Providers
- Other Maritime IT related Solution Providers

どういう方々が展示やスポンサーになりますか？

- サットコム・サービスのプロバイダー
- ECDISサービスのプロバイダー
- フリート運営方法のプロバイダー
- 安全や訓練方法のプロバイダー
- 海洋ソフトウェアのプロバイダー
- その他の海洋IT関係プロバイダー

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Seven steps to saving fuel

With the cost of bunkers having risen at an unprecedented rate in recent years, leading to massive increases in the costs of operation for shipping companies, finding ways to reduce the volume of fuel required to run a ship has become of critical importance. Andreas Mrozek, Hamburg Süd, told *Digital Ship* about some of the ways his company has tried to achieve this goal

The application of technology to fuel saving has become a topic of increasing focus in the maritime IT sector over the last few years – and little wonder, with bunker prices growing at a rate that is causing this most fundamental of operational costs to have an increasingly painful effect on a shipping company's bottom line.

With fuel bills running at tens or even hundreds of millions of dollars, the impact of an improvement of even one per cent in efficiency, with a one per cent drop in fuel required, can be enormous.

Fuel optimisation strategy has therefore become a hugely significant part of the operation of many modern shipping companies. Among them is German group Hamburg Süd, a company running a worldwide liner network with special focus on South America and Reefer Trades.

With a fleet of approximately 170 ships in operation, the fuel bill for an operation of this size exceeds $1 billion with the upward trend in bunker prices in recent years, as Andreas Mrozek, global marine operations senior manager, Hamburg Süd, explains.

"If you see the fuel bill of a shipping company, there have been ups and downs but it's basically always increasing," he told us.

"Considering that in 2004 bunker prices were at about $160 and now we are in the $600-$650 range, that has had an enormous impact on shipping companies. The fluctuations for the last few years make it difficult too, it can easily move $100 from the average price."

"These $100 differences, if you translate them with consumption of, say, 2 million tons, it will be obvious what the financial impact is for shipping companies. The price in different markets may vary a bit – but the trend is always the same."

As Mr Mrozek notes, these price changes have quickly established bunker fuel as the most expensive single cost item in container shipping.

"A lot of cost items in container shipping have, you could say, been squeezed over the last few years, but with bunker costs, though everybody is working on it, there is still quite a lot of improvement potential," he says.

"With the magnitude of the costs, even marginal savings have a large effect on cost improvement."

"So, in our example I gave you of the $1 billion fuel costs, if you take 1 per cent of that it's already $10 million. If you go through all of the different optimisation measures you could estimate that each of them has a savings potential of between 1 per cent and 7 to 8 per cent."

Fuel saving measures

The elements that Hamburg Süd has identified to form the basis of its fuel optimisation strategy comprise seven specific areas, some of which have an IT element while others are machinery or policy based.

These include (not ranked by importance):

1. Slow steaming
2. Hull optimistion and hull / propeller maintenance
3. Main engine optimisation
4. Waste heat recovery
5. Excellence in operating / performance optimisation
6. Weather routing
7. Trim optimisation

Slow steaming makes the biggest contribution to fuel optimisation. Hamburg Süd operates in 'slower-speed' trades, therefore leaving a smaller, yet significant, potential to generate savings, and has traditionally also always been an operator which has invested into wide- beam tonnage, which is a little bit slower and has a larger cargo carrying capacity.

Hamburg Süd's current largest vessels are the Santa Class (Length: 300m, Slot Capacity: 7,100 teu, Width: 42.8m), while its newest vessel type, with construction having already been started on the first in the series, is the Santa Max class (Length: ca. 336m, Slot Capacity: ca. 9,600 teu, Width: circa 48.2m).

Mr Mrozek notes that the company believes that, for the next number of years, this new class of ship is going to be the biggest that it can operate in South America, and that this will continue to suit a lower speed profile.

"A lot of the pro forma (speeds) have historically been around 20 knots but nowadays you could find them around 16 or 17 knots," he told us.

"One of the aims is to try, rather than squeezing the maximum out of a pro forma, creating a pro forma that is reasonably robust under different weather conditions and different congestion conditions at the ports."

"If we look at the speed consumption curves of different vessel age classes, we can see that for an old Panamax compared with a newer 5,000 teu vessel, at 16 knots the newer ship could save about 12 tons per day, which is about $7,800. At 20 knots it can save about 20 tons per day, or about $13,000. If you multiply this theoretically by 100, or however many days, you can see what we're talking about here, for one single ship."

Numbers two to four on the list, covering hulls, engines and waste heat, are other savings areas not directly related to the application of information technology.

However, hull optimisation and maintenance is a good example of an area where small changes can make a significant difference, particularly for newbuilds.

"Hydrodynamic hull optimisation is an important topic. The bulb shape, which historically have been made for higher speeds, nowadays needs to be geared towards lower speeds," says Mr Mrozek.

"We (Hamburg Süd) have never really constructed vessels for high speed. We made several attempts to add devices to support the flow of the water to the propellers, such as Pre-Swirl Stators and, more recently, Becker twisted fins. The coating is another point that is very important, self-polishing coating and antifouling has become standard in the industry."

"Then you have the option of mechanical hull and propeller polishing. Hamburg Süd operates on trades that by their nature don't cause much problem. For us hull polishing isn't normally a necessary operation, and you can only do it by laying up the vessel. Also propeller cleaning, usually it's not

The fuel bill for an operator of the size of Hamburg Süd can exceed $1 billion

an issue for us, but it's another option."

On the engine side, Mr Mrozek points to a better appreciation of the effect of engine size relative to performance as an issue that has been identified as particularly important.

"The biggest impact here on savings is simply in downsizing the engines, or, like we have done, keeping a similar size of engine as the vessels get bigger and bigger," he said.

"You also have to get the engines to operate optimally with a partial engine load, and have to create technology supporting that. Hamburg Süd commenced, at an early stage, investing in common rail technology. For existing engines you can do de-rating, modifying the nozzle ring of the turbocharger for lower performance optimisation."

"As a summary of a lot of factors, you want to see your engines getting better and better in a lot of different aspects."

Waste heat recovery programmes offer another potential improvement area, as a more suitable engine setup can lead to a reduction in waste heat.

"Shipping lines installed exhaust gas boiler concepts, so exhaust gas was used for bunker pre-heating," notes Mr Mrozek, "though with the downsizing of the engines that use of waste heat may not be sufficient anymore for the pre-heating of the bunker oil."

Applying technology

Elements five to seven on this fuel saving list are the ones that are better suited to the application of technology in the push to create savings, and Hamburg Süd is focused on optimising the management of information and data within the company to maximise its results.

"A shipping company is a complex mechanism, where you have a lot of factors influencing it," says Mr Mrozek.

"You have internal factors, like the officers, and external factors like port congestion etc. So it's very important for us to try and advance decisions further."

"We get better when we realise there's a certain problem and get faster in taking decisions to deal with it, such as what type of routing and operational planning we want to go after, and implementing that immediately."

One area of operational performance that the company has tried to improve has been in the creation of advance scheduling and operational instructions, based on improved coordination, allowing it to minimise change instructions to vessels, for example early or late ETAs.

"The speed profiles are a very important thing. If you succeed to operate the vessel at a permanent speed, with minimal adjustments only, for example for weather reasons, fuel consumption will decrease," Mr Mrozek explains.

"If you change the speed up and down a number of times (keeping the same average speed), several days of higher speed and lower speed makes a big difference on fuel consumption. It's much better to have a vessel, with consideration to external factors, where the speed is as constant as possible."

"Necessary for all of these things is a true flow of information. That sounds quite simple in an era of digital IT, but of course it's not because you also have to consider external factors. There can be an unlimited number of external factors which can influence this."

In this regard Hamburg Süd has worked with the software department at Germanischer Lloyd in the development of a reporting tool called Emission Manager, which it aims to use to replace the current method its vessels use to report when connecting to shore.

"All the standard reporting will be replaced by this tool which will produce the reports and send them to an agreed server database," notes Mr Mrozek.

"From there we will feed all internal data sources for all analytical necessities and environmental reporting and optimisation."

"Effective control of the ships has a big IT element. Effective control means that things have to be very timely, you can't have a big time gap before you take action on things. You can't wait until the completion of a voyage, or even later, you need to do things as soon as possible, on a day to day basis."

Elements six and seven on the list, weather routing and trim optimisation, are highly reliant on technology and its ability to quickly and accurately deliver real time data relevant to the ship's operation.

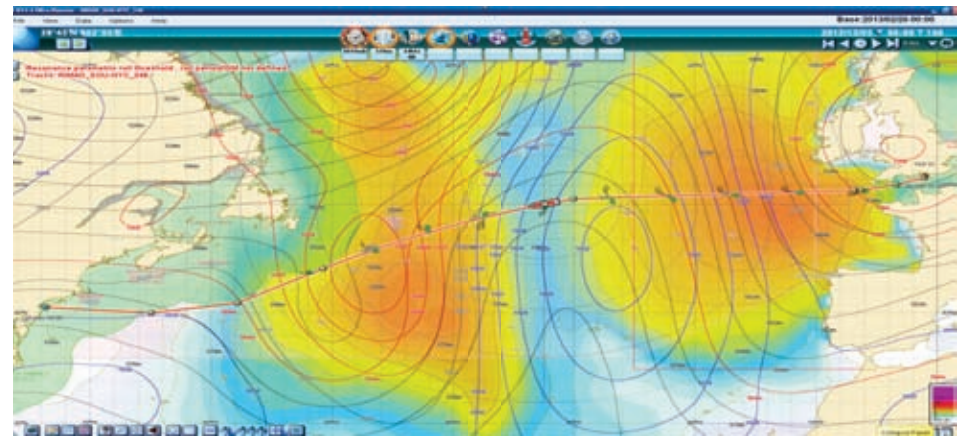
Mr Mrozek suggests that weather routing should be considered as a three part process.

"The first step is just to provide a fantastic software, which is largely standard as far as I can see nowadays. That gives the master a good tool and an efficient tool to plan the route," he says.

"The second step is that you have shore side routing support, from the weather routing service, and the third step, often a complex step, is having post voyage analysis. It's important that you succeed in discussing this with the vessel. It is necessary for crews to learn about it."

Hamburg Süd has also introduced trim optimisation technology from Eniram to its ships, to allow the crew to better control the trim dynamically throughout the voyage.

Prices for bunker fuel are increasing. Photo: Glasbruch2007



Weather routing could be considered as a three part process

"On the bridge they have installed a little device which shows if the trim is optimal or not," Mr Mrozek explains.

"It's not that easy though, in order to do so you need to measure quite a number of data aboard the vessel, and analyse that data. The device supports the crew in taking optimal decisions. Another path of development is that we use that data by bringing it ashore to analyse it."

Future development

In the future, Mr Mrozek believes that policy, strategy and technological development will increasingly be affected by the shipping industry's use of fuel.

"When we look at future challenges, what we know will not change is the cost pressures and the competitive environment – that is there to stay. There is no realistic reason to think that will go away," he says.

"We will also have the situation of increasing bunker prices. That's a natural trend, as we have seen, but it's also driven by environmental regulations."

"One thing is the sulphur regulation, where we have to deal with sulphur limits worldwide. As of 2020 it will be 0.5 per cent sulphur, which has a lot of impact on what we can bunker, so fuel will logically get more expensive. Then we will have local requirements in different parts of the world which will come on top of that. There will be NOx engine limits, Tier III will come into force for newbuildings as of 2016, and there may be CO2 limits."

One of the great challenges, which Mr Mrozek thinks will drive innovation in this area, will be the need to bring together the management of these different areas.

"We need to integrate the information flow to bring data into decision making. That is something that I think all shipping companies struggle with at the moment, and the bigger they are the more of a struggle it is," he says.

"We have to find ways to get all of this data together and structured in such a way that we don't have a flood of information, but divert information to where decision makers need it."

To illustrate the value of better information in decision making, Mr Mrozek uses an example of how advice from shore to a ship suggesting a change of just a few knots in speed to more accurately manage arrival time at port could lead to a significant cost saving.

Supposing a transpacific voyage of 16 days, main engine bunker costs for Vessel A, travelling at 17 knots, could be around $800,000. If Vessel B, doing the same voyage, was travelling at 20 knots, speeding up due to port congestion, the cost could be around $1.4 million.

This is a difference of $600,000 for just one vessel voyage. The additional costs for nine vessels operating this service would be $2.2 million if they have sped up on one leg only, or $3.8 million if they have sped up on the whole round trip.

As Mr Mrozek notes, "This is wasted money, it shows you that you can do things better and illustrates the saving potential we still have on managing speed."

Mr Mrozek says that he sees future investment in operational optimisation continuing to follow some of these trends that are becoming apparent right now.

"Slow steaming is here to stay, smaller engines are here to stay," he says.

"More propulsion improvement devices are a logical further development, and because of the restrictions there will be discussions about what the future fuel will be, what the future engine will be. LNG is a big part of these discussions at the moment, so does this mean new fuel is coming? A lot of companies are thinking about this and calculating scenarios, including us."

"That's not so far in the future as it may appear, because solutions need to be in place by 2020 at the latest. If you build vessels now and they last twenty years or twenty five years, then the discussion is very relevant at the moment. The same applies to desulphurisation."

Apart from these evolutions in vessel engineering, Mr Mrozek also predicts an improvement in the industry's ability to manage data through the use of technology systems, something that will be crucial in effectively managing other changes.

"We'll need IT support for the integration of all this information," he says.

"Reporting technology will be needed, and we've taken a step forward on that with Germanischer Lloyd, for example. And intelligence data, we'll need evaluation of that."

Satellite communications will also play a significant role in enabling this kind of integrated environment.

"Of course, communications technology will be important. From our point of view, we are trying to build up databases and data warehouses," says Mr Mrozek.

"With data being available and prices being more affordable for it to be transmitted that would help. We don't have FleetBroadband on all vessels, that's still at a testing stage, but once you have FleetBroadband you can sign up for plans that include much more data transmission."

"It's going to come, and it will be used to create optimisation benefits." DS

E-navigation today – with INS

The recent launching of new INS-compliant navigation systems are a first step into the e-navigation future, *writes Andreas Lentfer, Raytheon Anschütz*

When IMO first published the basic idea of e-navigation in 2006, it quickly became clear to the industry that this initiative may drastically modernise maritime navigation in its core structure.

As is usual for many IMO activities, e-navigation was triggered by ship accidents, particularly research showing that over 50 per cent of all ship accidents are caused by navigation failures, and 60 per cent of those failures were caused by 'human error'.

IMO was alerted by major flag states to the fact that this problem exists and is increasing in magnitude, despite the fact that many new, additional technologies are nowadays installed on board.

Further investigation highlighted what navigators complain about most: too much and inconsistent information on the bridge; poor presentation of data; a lack of qualifications and familiarisation training; insufficient use of shore information; poor monitoring of ships from the shore; and finally a lack of good bridge watchkeeping procedures.

Because of the importance of this subject, IMO referred it to its NAV, COMSAR and STCW subcommittees, to look at ways to improve the various aspects of navigation, communication and bridge manning.

Despite the complexity of the subject and the necessary, but time consuming formal process at IMO, quite a lot has been achieved, including a comprehensive analysis of user gaps and a list of proposals for improvements.

These measures focus on improving the human/machine interface (HMI) and integration of systems on board, as well as examining new shore-based maritime service portfolios and how we can create a link between these two worlds.

In 2012, MSC 91 finally adopted an "overarching e-navigation architecture" and it became clear that the integrated navigation system (INS), as specified in the INS performance standards MSC.252(83), would become one of the core elements of the shipborne system.

The new performance standards require an integrated navigation system to integrate the tasks of collision avoidance, route monitoring, route planning, navigation control data display, status data display and a centralised human-machine interface for alert management on multi function displays (MFD).

This basically means access to any function from any workplace on the bridge – which is certainly more than bridge system integration allowed in the past.

INS also provides integration of sensor data and other information such as MSI, AIS, charts, radar, alarms, and system status or reliability indication for important equipment. These are just some of the available features that will improve availability of data and thus help make navigation safer, as well as making bridge operations more simple and efficient.

Additionally, having a network-based architecture with central real-time processing of formerly locally organised tasks will add another layer of redundancy – and thus safety – to the navigation system.

So INS could be seen to provide for many of the wishes of e-navigation: harmonised HMI, harmonised sensor data, and harmonised alarm management. With an appropriate system architecture, some manufacturers can allow for the further functional integration of additional applications, such as ship automation systems.

That's why INS can be considered the first building-block for e-navigation.

INS is an essential building block for e-navigation

Next steps

What comes next? There are basically two key items to start with.

Number one is safe positioning. IMO has recognised that we are far too dependent on GNSS and that there is a need for land-based alternatives, be they hyperbolic systems such as e-Loran or automated radar position fixing. Many proposals are on the table.

Number two is ship-shore communications, which can be considered the 'backbone' of e-navigation.

The current SOLAS IV cannot facilitate what we need for the future. A new concept is needed to merge emergency radio functions (GMDSS) with commercial satcoms, to create one total system.

The MF/HF coverage of arctic regions is also insufficient and has to be replaced by new concepts, while the new system would additionally need to support SAR operations in a better way.

Future ship-shore communications will include not only VHF, HF and L-band, but also Ku-band and Ka-Band. VHF and satcom can even be combined, with the ESA considering establishing a VHF satellite constellation of orbiting satellites with both up and downlink capabilities.

Small attenuation between antennas on board will become a challenge, as will interference.

But safety requirements will definitely be set very high. Mobile telephone services, broadband wireless access (BWA), WiMAX/mesh networks, wireless local area networks and non-regulated satellite emergency notification devices will not be considered appropriate for SOLAS ships.

As navigation and communication are getting closer, IMO's equipment carriage requirements for navigation and communication will no longer be separate items but will start to converge, or even merge.

IMO has already started work on new requirements, but due to the adoption process involved it will take until 2017 before these are complete.

When new communication channels are available ships will have much better access to shore based maritime resources, however we are a long way from establishing these services. Coastal administrations expect that this may take until 2028.

So it seems that e-navigation will happen sometime in the far distant the future. Many make the mistake of expecting that, when it does, IMO will define the perfect set of shipboard equipment once and forever. This will not happen; e-navigation is a continuous process rather than a result.

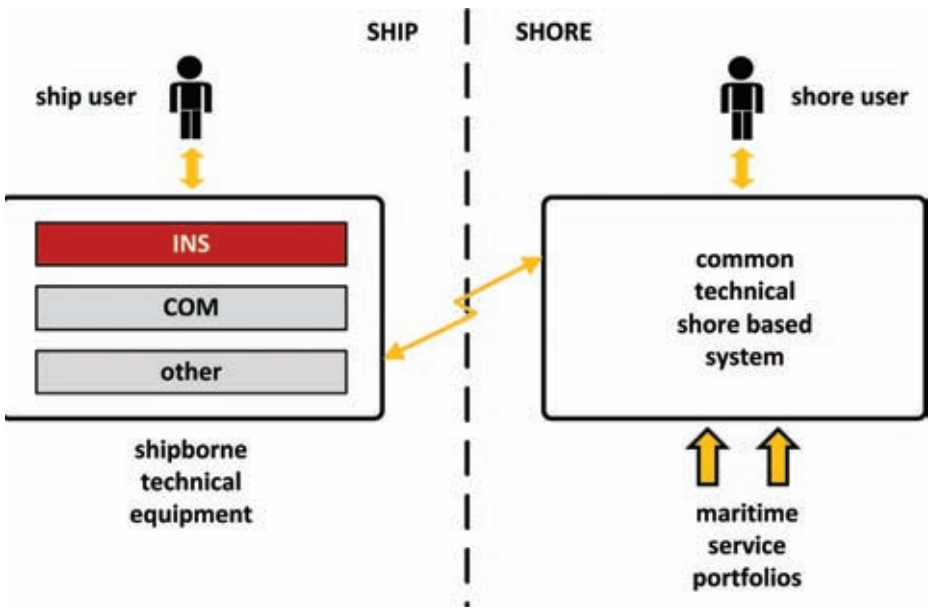
The e-navigation process

As a next step, IMO will present its 'Strategic Implementation Plan for E-Navigation' at the end of 2014, which shall then provide detailed guidance on further proceedings. Physical implementation on board and ashore can then commence in 2018.

The Strategic Implementation Plan will focus on finding solutions in five major areas:

1. Improved, harmonised and user-friendly bridge design,
2. Means for standardised and automatic reporting,
3. Improved reliability, resilience and integrity of bridge equipment and navigation information,
4. Integration and presentation of available information in graphical displays, received via communication equipment,
5. Improved communication of VTS portfolio.

Numbers 1 and 3 are already covered by the INS performance standard's requirements for multi function displays and for



The overarching e-navigation infrastructure will integrate shore and ship-based systems

the Consistent Common Reference System. Solutions 2, 4 and 5 may take much more work and time to be defined, let alone implemented.

Will this long process prevent manufacturers from introducing new features? Will it stop shipowners from using these features? Definitely not.

Multi function displays, replacing conventional stand-alone radars and stand-alone ECDIS displays, are a key element of every INS. A typical ship installation consists of five MFDs, where each MFD works independently and offers the full functionality of radar, chart radar, ECDIS, conning and central alarm systems.

As outlined in the new INS standards, every MFD has a number of modes.

In collision avoidance mode, the user gets a radar display or chart radar display, including AIS-ARPA target association, curved heading line, radius control and collision assessment.

Optional integration of radar-controlled cameras (daylight or night vision), which is required by coastal patrol ships and for pirate detection, is even possible. Shore based data about pirate attack locations is then uploaded and displayed in radar and ECDIS.

During route planning mode the user gets a full ECDIS screen with a variety of tools for voyage management – automatic route planning based on newest world harbour and waypoint databases, tidal curves, route calculator, on-screen NAVTEX display and weather chart overlay.

Weather forecast chart data is available for any area, worldwide, and is regularly updated online every few hours, typically through satcom.

The route monitoring mode activates the position display, offering heading vectors with position prediction, display of selected route, off track distance, waypoint position, ETA as well as radar vectors, and AIS vectors and AIS target data.

The central sensor management can possibly be called the core element of the new performance standards. It collects sensor data, defines reference points, and monitors the availability, validity and consistency of sensor data.

The best available sensor is then automatically selected and used for distribution throughout the system (via the Consistent Common Reference System). Of course, manual sensor selection is possible as well.

This data can be linked to a completely new alert management concept that can provide what many captains, pilots and owners have been longing for, for many years – the avoidance of unnecessary alerts, especially duplicated alarms and follow-up alarms.

The modern bridge identifies and evaluates all alert conditions, makes sure all system components stay muted and then presents only one alert. This can certainly lead to a great reduction in stress for watchkeepers, but also contribute to increased safety, since the watchkeeper's attention is directed to the really critical alarms.

It is not only sensor data and alarms that are managed centrally, but almost all navigation data.

Central administration of AIS and ARPA plots makes sure that target designation IDs are identical on all radar and ECDIS displays. NAVTEX messages and AIS short messages are centrally managed and then made available to all workstations, no matter whether it is for the radar display or ECDIS display.

Whenever new NAVTEX or AIS messages come in, the user is alerted by a red icon on every workstation and he can view the messages on any of his displays.

Retrofitting e-navigation

Current experiences with the implementation of ECDIS show, clearly, that only a fraction of all applicable ships will use new technology voluntarily.

Even though ECDIS can save time and money and increase safety, the majority of the world fleet does not yet use it and IMO has had to apply SOLAS carriage requirements to force installations.

Today, approximately 30 per cent of all ship newbuildings are voluntarily installed with integrated bridges, around 500 ships per year. Even assuming that IMO will demand these newbuildings to install INS compliant systems as the base for growth in e-navigation, we would still only have 5,000 ships fitted in 10 years.

This is less than 10 per cent of the world fleet – possibly not matching IMO's expectations.

If e-navigation is to really improve global navigation safety, we have to look at reaching the existing world fleet of over 60,000 vessels, so we have to create more simple solutions.

Why not fit a stand-alone multi function display with 'e-navigation-like' features on every old ship? Connect it to the shipboard navigation sensors as well as to the shipboard satcom station, and you are finished.

Shipowners are installing new radar displays or new ECDIS displays on old ships almost every day. Why not go for a multi function display instead?

This is a unit which is a radar and ECDIS at the same time and provides many of the new 'e-navigation-like' features. This way every ship could easily get an entry ticket to the global e-navigation world. DS

About the author
Andreas Lentfer *is director of business development with Raytheon Anschütz, a provider of a range of navigation equipment and technologies for the maritime market.*

Maritime IT at Nor-Shipping – Preview

When the summer comes, the great and the good of the shipping industry gather together in some of the world's major maritime centres to catch up with old friends and see who's doing what and with whom. This year Norway is the host for the biennial Nor-Shipping event - for those looking to catch up on the latest in technology, *Digital Ship* has a guide to some of the maritime IT exhibits on show

ABB Marine

Automation technology group ABB Marine will display its EMMA (energy management system for marine applications) equipment at this year's Nor-Shipping.

The advisory suite package collects and processes data from various ship components and systems, thereby providing owners and operators with insight into how the vessel and its processes are performing.

EMMA has been adopted by container ship operator Rickmers, cruise vessels, and LNG-fuelled ferry Viking Grace.

ABB's other products include instrumentation and device control, process automation, vessel management, navigation information, and fleet management and reporting systems.

Visit ABB Marine at stand E01-12

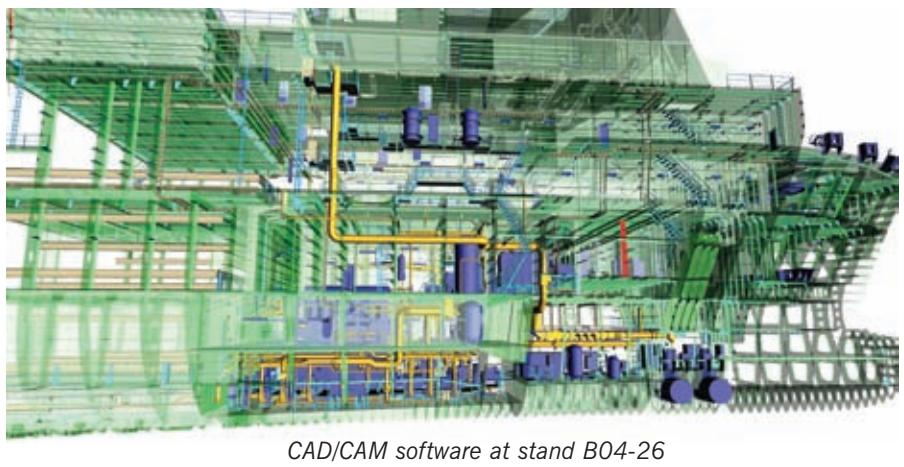
Aveva

Aveva will exhibit ship-design software, laser scanning, a resource management suite of applications and a 3D design software for offshore projects at the 2013 event.

Its marine portfolio comprises Integrated Engineering & Design products, including a suite of software for the design and construction of ships and offshore projects.

Its Laser Model Interface can assist with 'in-ship engineering' for ship modification projects and offshore revamp projects, while its Enterprise Resource Management suite of applications supports ship-building material, planning and production management processes.

A new plant design software, AVEVA Everything3D, is also available, designed to break down barriers between the design and the construction of offshore projects.



CAD/CAM software at stand B04-26

Visit Aveva at stand B04-26

AWT

Applied Weather Technology (AWT) will introduce the latest version of its BonVoyage System at Nor-Shipping, BVS 7.0.

Visitors will be able to see a demo of the marine voyage optimisation tool, that provides on board weather-routing information. Data is sent to the ship in a com-

pressed e-mail and then used to generate maps and graphics that allow the shipmaster to view potential problem areas. BVS also suggests an optimised route.

AWT will additionally exhibit its Fleet Decision Support System (FleetDSS), which allows operators to visualise an entire fleet at one time, or filter information to focus on vessels deemed more important or in need of attention.

They can send an e-mail to all vessels in a specific region to alert them to the latest typhoon forecast, pirate attack, or limit of known icebergs, and can customise the favourites tab to quickly find the features they use most.

Visit AWT at stand D01-08i

BASS

At Nor-Shipping 2013 BASS, a Norwegian provider of fleet management software, will present BASSnet 2.8.

Developed on the Microsoft .NET technology platform, this modular software is designed to help build an integrated solution covering all main areas of maritime operations.

Modules include: maintenance, drydocking, procurement, document manager, operations, 'best practice' safety, risk manager, reviews & improvements, HR manager, report generator, and financials.

Visit BASS at stand B04-06

Beijer Electronics

Norwegian company Beijer Electronics will present a range of certified high-performance maritime HMI solutions at the exhibition.

The company says that the panels it will exhibit offer a wide operational overview providing control, monitoring and handling of on-board systems.

Beijer Electronics also offers human-machine interfaces to facilitate crew-to-vessel connection.

Visit Beijer at stand B04-18

Cobham SATCOM

Cobham SATCOM, which was formed after Cobham acquired Thrane & Thrane last year, will show a range of Sea Tel antennas and SAILOR products at Nor-Shipping, including maritime VSAT, FleetBroadband, GMDSS, radio, safety and tracking systems.

It will exhibit two new GMDSS systems featuring touch screen operation: the SAILOR 6390 Navtex and the SAILOR 6280 AIS System (Class A).

The latter is a 'black box' design for ease of installation, and uses the ThraneLINK network protocol.

Visit Cobham SATCOM at stand T02-20

Conrac

German manufacturer Conrac will showcase a variety of touch screens and marine computers in Oslo this year.

The screens on display will include: a 55'' multi-touch chart table, and two display screens featuring pcap touch technology (19" and 21.5"). A 4K x 2K screen will also be unveiled.

Conrac will additionally present marine grade panel computers supplied as console mount or chassis versions, which feature a proprietary system monitoring application called SysMon used to control settings. The SysMon functionality can also be used for dedicated ECDIS calibration.

Touchscreen displays at stand C01-10d

13.3'' and 7'' panel computers specially designed for ship automation and control applications will be on display; both are available with touch functionality.

Visit Conrac at stand C01-10d

Daniamant

The newly merged companies Daniamant and Daniamant Electronics (formerly known as Uni-Safe Electronics) will be exhibiting the BW-800 BNWAS at Nor-Shipping.

BNWAS systems at stand B02-30B

From next July, all ships over 500GT will need to be equipped with a Bridge Navigational Watch Alarm System (BNWAS). The BNWAS sounds an alarm when the watch officer on the bridge of a ship falls asleep, becomes incapacitated, or is absent for too long a time. If the watch officer fails to react, the system alerts the captain or another officer.

Developed by Uni-Safe Electronics before its acquisition by Daniamant, the Bridge Watch BW-800 has received the Wheel Mark showing that it complies with the European directive on marine equipment (MED).

Visit Daniamant at stand B02-30B

Fugro Satellite Positioning

Oslo-based Fugro, which provides Precise Point Positioning (PPP) for both the GPS and GLONASS navigation systems, will present a range of products and services which it has developed for merchant navy applications.

These include the Marinestar Manoeuvring System, which offers guidance to mariners berthing or manoeuvring large ships in confined waters. It also assists with bunker fuel optimisation by offering trim management functionality.

Marinestar MS is typed approved and can be an alternative to some other existing navigation equipment, such as a GPS/DGPS, dual axis Doppler log, Gyro Compass and a Rate of Turn Indicator.

Visit Fugro at stand B01-27

Globecomm Maritime

At Nor-Shipping Globecomm Maritime will present a range of maritime communications services which combine global Ku-band VSAT and L-band coverage to deliver IP connections to vessels.

Its product suite also includes value-added software applications.

Globecomm's Access Maritime system offers owners, ship managers, officers and crew a single platform for communications. It can bridge L-Band (Inmarsat, Iridium, Thuraya, etc.), VSAT, Wi-Fi and mobile access automatically to provide voice, internet, e-mail and applications, from weather data to ship management tools.

Visit Globecomm Maritime at stand A1-14

Globe Wireless

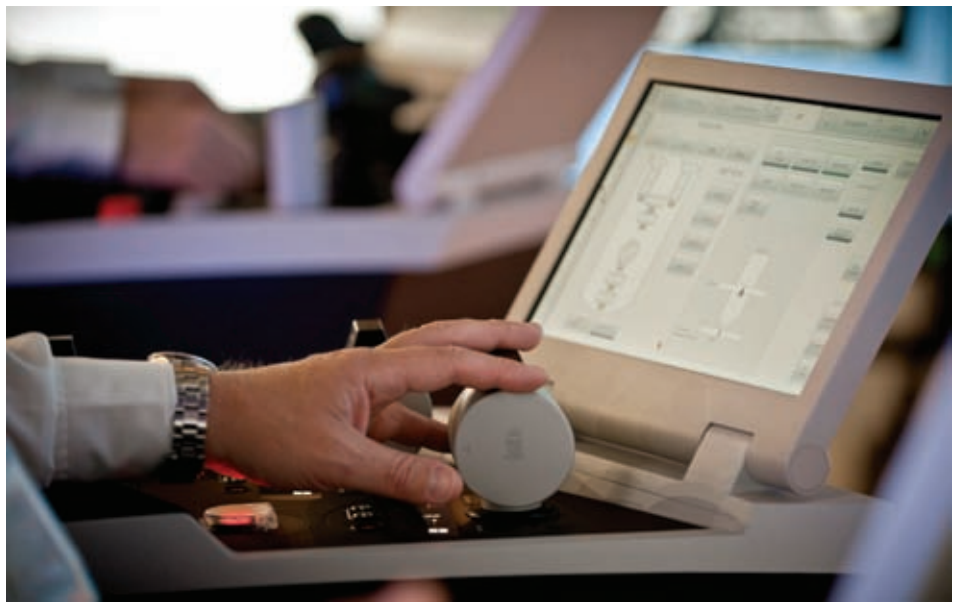
Globe Wireless will showcase the Globe iFusion Fixed Multiple Lines capability along with its VSAT offerings and new Pre-Paid Browsing Solution at this year's Nor-Shipping.

Fixed Multiple Lines supports up to

Black box AIS at stand T02-20

Integrated satcoms at stand B05-22

Learn about the VSAT helpdesk at stand E03-25



Ship handling systems at stand C03-24

nine VoIP handsets, allowing up to five simultaneous inbound/outbound calls on FleetBroadband. The system operates on the same Digital Quality Voice (DQV) service used by GlobeMobile. Local country numbers can be assigned to each phone line on board, reducing the cost to call the ship.

Globe Wireless' Prepaid Browsing Solution works as follows: ship owners or managers create billing plans remotely from their office, captains then generate and sell vouchers to crew members, and crew members use a computer or mobile device for connection and have instant access to the internet.

The Florida-based company will also showcase the R6 software released last year for Globe iFusion, featuring VSAT auto-recovery tools.

Visit Globe Wireless at Stand B05-22

Guntermann & Drunck

At Nor-Shipping Guntermann & Drunck, a German manufacturer of KVM (keyboard, video and mouse) solutions, will present its portfolio for maritime IT applications.

KVM technology facilitates the work of controllers on board or in control centres as IT applications can be monitored from any central location.

The technology can be used, for instance, by Vessel Traffic Services (VTS), on nautical bridges, to monitor processes on dredgers, in control rooms in sea freight containers, and in antipiracy facilities.

Guntermann & Drunck develops, produces, installs and commissions these KVM technical solutions.

Visit Guntermann & Drunck at stand C01-01e

Harris CapRock Communications

Harris CapRock, a communications provider specialising in remote and harsh environments, will present SeaAccess, a turnkey VSAT solution, at this year's exhibition.

Designed for commercial maritime vessels, SeaAccess provides internet access, business data and voice and fax services for a fixed cost. It hosts such services as crew calling cards, internet access solutions and backoffice support. The C- and Ku-band service coverage is paired with in-region support and a 24/7 help desk.

SeaAccess also supports the corporate and recreational communications requirements of passenger maritime vessels, be they global cruise fleets or individual luxury yachts. Different service options are available depending on whether vessels require global or regional service.

Visit Harris CapRock at stand B01-24

Imtech Marine

Imtech Marine will demonstrate remote monitoring support at Nor-Shipping 2013. A Global Technical Assistance Centre, set up in its Nor-Shipping booth, will give visitors a live presentation of the system.

Imtech Marine's monitoring rooms have access to all the relevant data of a ship, which they continuously analyse so as to spot any issue at an early stage. Imtech Marine's staff also carry out routine maintenance and install software upgrades.

When they can't solve a problem remotely, maintenance technicains make sure that a service engineer in the next port of call is available and they inform him/her of their diagnosis.

Visit Imtech Marine at stand E03-25

Intellian

Intellian will present its new VSAT antenna at Nor-Shipping, which is compatible with Inmarsat's upcoming Global Xpress.

The v100GX 3-Axis Ku-Band antenna incorporates a dual-band, carbon fibre reflector and tuned radome, for consistent service whether operating on Ku- or Ka- band. The 1m antenna is prepared for the Global Xpress Ka-band broadband service from Inmarsat, planned for the end of 2014.

Intellian will also exhibit Fibre Link, which combines several RF signals into a single fibre optic cable. The company says that this configuration virtually eliminates signal loss for VSAT and TV reception.

Visit Intellian at stand A1-07

JRC

Japanese manufacturer JRC will exhibit the latest version of several of its products at the exhibition: a radar, two navigation data displays and two satellite systems.

The JMA-5372-SA solid state S-band radar displays targets with digital accuracy while transmitting at 1/100th of the power of a conventional radar, says JRC.

The company will also show its 26-inch Multi Function Display (MFD), as well as its new generation 4.5-inch common display series, available as NMEA repeater, (D)GPS, speed log, BNWAS and AIS.

JRC will also present its second generation JUE-501 FleetBroadband system, and its JUE-87 Inmarsat C, with an all-in-one messaging unit and a new set of accessories.

Visit JRC at stand B03-08

Kongsberg Maritime

Kongsberg Maritime will display navigation and aft bridge systems at Nor-Shipping, which feature a uniform HMI that simplifies operations in terms of navigation and manoeuvring.

The company will also exhibit specialist applications such as anchor handling and will demonstrate its Ship@Web platform, which presents all important information in a web browser, accessible both on board and from the shore office. The idea is to allow for better data sharing in order to increase efficiency, especially to reduce fuel consumption.

Kongsberg Maritime will also put its 'Full Picture' ethos in the spotlight, aiming to demonstrate its ability to be a single supplier across navigation, manoeuvring, automation and specialist systems.

Visit Kongsberg Maritime at stand C03-24

KVH

KVH will demonstrate its TracPhone V series and its mini-VSAT Broadband service at Nor-Shipping 2013.

TracPhone V11, V7-IP, and V3-IP all feature integrated CommBox Ship/Shore Network Manager functionality. They offer voice and data connections for vessels around the globe via a menu of airtime plans.

mini-VSAT at stand A1-43

Since all of these systems all work with KVH's mini-VSAT Broadband service, ship managers can opt for a solution combining hardware and service from a single provider.

The US-headquartered company says that the TracPhone design makes it less complex than other VSAT systems, which usually require a technician to configure.

Visit KVH at stand A1-43

MARIS

Norwegian company MARIS will exhibit its ECDIS900 system at the exhibition, which comes in two different types: flat panel computer or multi-display and rack computer. Both have been developed for paperless navigation.

Compliant with the IEC 61174:2008 Ed3 standard, they operate using Windows XP. Users can order electronic charts online.

Both ECDIS900 systems share the following features: advanced passage planning, radar overlay, duplex link to AIS (Automatic Identification System), Total Tide integration, weather forecast display, Navtex interface, and weather routeing.

Earlier this year, MARIS secured a 30-unit deal to deliver ECDIS900 to Turkish shipyards.

Visit MARIS at stand B05-19

Marlink and Astrium Services Business Communications

Marlink will exhibit its WaveCall standardised VSAT and Sealink customised VSAT systems at this year's Nor-Shipping.

The company will also present a number of upgrades to its services portfolio, including new versions of XChange and SkyFile Mail with a focus on support for the 'Bring Your Own Device' trend, but at sea – which it sees as a growing phenomenon.

Marlink will be promoting the concept of hybrid solutions, where different satcom bands are integrated alongside GSM and 3G/4G for least cost routing.

The company will also be offering further details on the formation last year of Astrium Services Business Communications. The organisation has two market channels: direct to vessel, which is handled by Marlink, and

Satcom management at stand B02-14

Bridge technologies at stand C02-22C

indirect, which is the previous Vizada organisation, working as Astrium Services to support maritime communication service providers.

Visit Marlink at stand B02-14

Netwave Systems

Netwave Systems will exhibit its MarLiant 8000AS data centre in Oslo, which it says enables shipping companies to establish a secure and stable LAN infrastructure on ship.

The redundant on-board IT server platform has been designed to secure the uninterrupted availability of computer applications on sea-going vessels and offshore installations.

Within the MarLiant system, software applications are centrally placed on and run from a Windows server, rather than on individual shipboard PCs. Windows applications are executed on the MarLiant central server in parallel sessions, on behalf of multiple client workstations.

Visit Netwave at stand C02-14e

Raytheon Anschütz

German navigation system supplier Raytheon Anschütz will present at Nor-Shipping, for the first time ever, its Horizon MF gyro compass.

Horizon MF is a strap down compass system which uses hemispherical resonator gyros to measure angular rates for heading calculation.

Along with the sensor, Raytheon Anschütz will exhibit the Synapsis Intelligent Bridge Control system.

Synapsis is the company's latest version of an Integrated Bridge and Navigation System (IBS/INS), featuring wide-screen, task-orientated multifunctional workstations.

It is claimed to be the first INS which is type-approved according to the new IMO Performance Standard MSC.252(83). In 2012, Synapsis was installed on a tanker newbuilding series at a Croatian shipyard.

Visit Raytheon Anschütz at stand B03-14

SAM Electronics (L-3)

At Nor-Shipping SAM Electronics and its associate L-3 companies will feature a range of automation, communications, navigation, propulsion, energy generation and distribution systems for ships.

These will comprise enhancements to the NACOS Platinum series of bridge-based integrated navigation, automation and control systems.

Other exhibits include an L-3 Valmarine multi-functional Valmatic Platinum automation assembly, with distributed hardware for centralised control and management, and a new dynamic positioning and control system developed by L-3 Dynamic Positioning & Control Systems in collaboration with SAM and Lyngsø Marine.

Also featured will be SAM's energy and drive capabilities, including diesel-electric propulsion systems with power ratings of between 2MW and 28MW using a frequency converter design.

Visit SAM Electronics and L-3 Communications Valmarine at stand CO2-22C

IBS systems at stand B03-14

Seagull

Norwegian company Seagull will be introducing two computer-based training (CBT) modules at this year's exhibition, to help ship officers and crew managers raise safety awareness among the seafarers under their supervision.

The Seafarer Appraisal course (CBT # 0259) is designed for management level officers on board ships, and human resource and crewing managers ashore. It introduces the appraisal process, explains supporting documentation and offers guidance.

The Behaviour-Based Safety (CBT # 0260) is aimed at shipboard Deck and Engine officers. It uses the 'Observe, Assess, Provide Feedback and Evaluate' methodology to prompt safety behaviour modification.

Visit Seagull at stand C01 – 21c

SpecTec Group

SpecTec Group will present its AMOS (Asset Management Operating System) software at Nor-Shipping 2013.

The business suite allows operation and control of technical and documentation aspects in the fields of maintenance, spare parts and stock control, purchasing and procurement, quality and safety documentation management, voyage management, and crew management.

Visitors will also be able to see a software demonstration at the company's stand.

Visit SpecTec at stand Number B01-22

Telemar

In Oslo, Telemar will present the services which it supplies for the management of maritime communications, including airtime, communication and navigation equipment installation, maintenance and repairs.

Telemar is one of the Value Added Resellers (VARs) chosen by Inmarsat for its Global Xpress Ka-band service, scheduled to offer global coverage from late 2014.

Telemar also provides worldwide servicing contracts. With about 7,000 current maintenance customers, the company says it manages more than 10,000 service interventions per annum.

Visit Telemar at stand B02-17

Telenor Satellite Broadcasting

Telenor Satellite Broadcasting (TSBc) will exhibit at Nor-Shipping ahead of the launch of its latest satellite, THOR 7.

Scheduled to start commercial service in 2014, THOR 7 will increase capacity for broadcast and broadband services.

It will be equipped with a Ka-band payload, which will be used to meet the growing demand for broadband communications within the offshore sector, offering coverage over the North Sea, the Norwegian Sea, the Red Sea, the Baltic Sea, the Persian Gulf and the Mediterranean.

THOR 7 will also be equipped with 11 Ku-band transponders, to provide dedicated capacity for broadcast services in Central and Eastern Europe.

Visit Telenor at stand B01-26

Tero Marine

Bergen-based software developer Tero Marine will be showcasing the latest version of its TM Master fleet management system at Nor-Shipping.

The updated version presents three new modules. TM iMagine changes the way of presenting and comparing data, while TM Movable Assets aims at easing transfer of assets between different locations. TM Dive is designed to help the dive industry to report maintenance data to IMCA (International Marine Contractors Association).

Existing TM Master modules cover Maintenance & Inventory, Quality Management, Procurement and Crew Management.

Visit Tero Marine at stand A1-06

Transas Marine

At Nor-Shipping Transas Marine, an ECDIS manufacturer and provider of digital services, will demonstrate a range of product packages featuring its Navi-Sailor software: Standard, Standard+, Premium and Premium+.

Transas will showcase Navi-Planner 4000 at the exhibition, a charts management application with a set of databases and services intended for voyage planning. The company says that is suitable both onboard, as a back of bridge application, and ashore as a management tool.

Transas will also demonstrate its Navigation Bridge systems, powered by the Navi-Trainer Professional Simulator and Offshore Training solutions.

Other products and services displayed will include type-approved ECDIS, the Transas Admiralty Data Service (TADS) for official charts, Pay-As-You-Sail, the Wave fuel efficiency monitoring system, weather services, ECDIS training, plus service and maintenance.

Visit Transas at stand B02-24

DS

E-navigation and the future of VHF

VHF communication has been an important part of the maritime infrastructure for decades, and continues to be present on board ship as a 'low-tech' alternative to satcom – perhaps, given the nature of the technology, it may be possible to extend its use as part of the evolution of the e-navigation system, *writes Dr Andy Norris*

The evolution of marine communications is surprisingly difficult to predict even though e-navigation needs good digital services. However, the point is being reached where the firming-up of ideas is becoming essential.

E-navigation is not dependent on any particular communications technology but its adoption and continued evolution will require an ever-increasing total capacity for digital data exchange.

At a technical level it can be argued that communications at sea could generally be centred on satcoms, even for communicating with nearby vessels. Small craft, including leisure vessels, could use lower bandwidth Low Earth Orbiting systems, which only require small antennas.

Close to land, terrestrial links such as 4G could provide an alternative solution.

However, possibilities for the advanced use of the VHF band also need to be examined. It is a valuable resource allocated to maritime and does have a number of useful and complementary advantages when compared to satcoms and commercial terrestrial systems.

In its present form it is known as being reliable in virtually all conditions, it gives very practical ranges for most situations, its equipment is easy to use – and its use is free of charge.

Importantly, any development of VHF must take into account that it will be necessary to maintain a conventional VHF service for some years to allow all vessels to be re-fitted.

Digital VHF

At present the VHF maritime bands are mainly used for voice communications, with a good proportion emanating from non-SOLAS vessels. VHF provides the main interface with Vessel Traffic Services and forms the primary communications for coastal and short range GMDSS.

Although the partially digital VHF DSC service remains an essential and effective component of GMDSS, its use for regular one-to-one calls has not been taken up in the way expected when it was originally mandated for fitting.

About 10 years ago AIS was introduced. It uses specific VHF channels digitally and in a very effective manner. It is therefore certainly worth considering what a move to increased digital use of the VHF band could offer for an e-navigation world.

In fact, the International Telecommunication Union has already considered the technical characteristics and performance of a number of options for a fully digital VHF band in its Recommendation ITU-R M.1842.1.

If VHF was used digitally in the way that ITU has surmised, a modern modulation method could achieve a data rate in kilobits per second of up to about three times the bandwidth in Hertz of the channel used.

It means, for example, that a 25 kHz wide existing simplex VHF channel could conceivably be used at a data rate of over 75 kbps.

This compares to just 9.6 kbps achieved by a single 25kHz AIS channel, which, not coincidentally, is the effective bit rate required to digitally transmit a useable voice signal.

VHF has been around for a number of years – but development of the technology could offer significant benefits for e-navigation. Photo: SJ de Waard

Such a modern modulation would therefore give a highly useful eight times improvement in the total capacity of the maritime VHF band.

Unfortunately, there is a massive problem in implementing such an improvement – it would effectively make all existing VHF equipment obsolete, including AIS.

This is because any channel being used for such an enhanced digital service would create serious interference problems for existing VHF receivers, even if they were operating many channels away from the digital transmission.

Present-day maritime VHF radios have not been designed to operate in such exacting conditions but a new digital high bandwidth transceiver would obviously have such a capability built-in.

The exacting requirements to achieve this protection, together with other technical complexities, would undoubtedly make such transceivers rather more expensive than conventional VHF radios.

The main problem, however, is that it complicates the implementation of a wideband digital service – a global 'overnight' change from using existing VHF services to new digital services is impossible to contemplate.

A way forward?

It is interesting to note that a 9.6 kbps data rate for a digital service does not create any interference problems, as demonstrated by AIS.

At this data rate the interference generated is similar to that of a conventional VHF receiver being used for voice. It is the very reason why AIS is designed to use such a data rate.

It may therefore be feasible to initiate a dual service, with the VHF band effectively divided into two segments, one for the existing, mainly analogue service and one for a 'low-bandwidth' digital service.

In fact, with a reasonable guard zone between the two bands to ensure there would be no interference to existing systems, it may be feasible for the digital service to commence using a data rate in excess of 9.6 kbps – perhaps even double this.

This extra capacity would help justify the costs of the technological change.

Existing conventional systems would be legally confined to operate just within the defined channel ranges. Incorrect setting of a conventional VHF radio to a digital channel would create interference problems for both services.

The digital radios would ideally be designed so that they would be able to work at higher data rates after the eventual phase-out of the old VHF system.

The provision of voice communications would remain an important function of the new digital service but its use would be different to that of the existing VHF system. For instance, channel selection would be automatic.

In some ways it would be more akin to using the voice services on a mobile phone.

However, most of the new band capacity would be taken up by digital data, perhaps much of it occurring in a fully automated manner.

This would effectively make the digital channels able to behave like a super-AIS service and therefore could eventually fully embrace existing AIS services. The AIS information would just comprise a part of the total data being handled and would be treated similarly to any other e-navigation data.

With more effective bandwidth available for existing AIS functionality, greater security and integrity would be able to be built-in, overcoming a major weakness of the current AIS service.

Importantly, the existing AIS service could co-exist for as long as necessary as part of the bandwidth reserved for conventional VHF traffic and therefore be protected from any interference from the new digital channels.

Integrated communications

It is interesting to note that developments in existing satellite AIS monitoring systems may allow them to relay relevant digital VHF data to other communications systems. This could give a wider dissemination of appropriate VHF-originated information.

Further into the future, such systems may also be able to provide two-way interaction, provided it does not lead to overloading of the digital VHF channels.

A lot of innovative thinking needs to be applied, not least to the basic implementation of digital VHF. It has to work rather differently to most other communications systems as it will not be in the control of a centralised base station.

In some ways this is similar to the case for present-day AIS. For optimum operation AIS relies on precise time being available from GNSS. Ideally, this should not be the case for the potential digital VHF service unless precise time from alternative sources is also available.

Being a ground-based lower frequency system the strengths and weaknesses of a digital VHF system are quite different to those of satcoms and therefore its adoption would significantly enhance the overall integrity of e-navigation.

It could continue to act as the statutorily-fitted shorter range communications system but with greatly enhanced facilities compared to today's VHF.

It appears possible for a practical route to evolve that will allow ships and service providers to sensibly migrate from the existing VHF system to such a fully digital system, provided that it does not produce interference with non-maritime uses of the VHF band.

A path for the future of AIS is embedded within the same thinking, particularly enabling the AIS concept to realise its full potential by providing vastly improved security and integrity.

Such a new service as described does suffer from one weakness. It is very maritime specific and in some years after its full implementation it will undoubtedly begin to look very old-fashioned compared to the 'outside' world – perhaps even as old-fashioned as present day VHF now looks... DS

Dr Andy Norris has been well-known in the maritime navigation industry for a number of years. He has spent much of his time managing high-tech navigation companies but now he is working on broader issues within the navigational world, providing both technical and business consultancy to the industry, governmental bodies and maritime organizations. Email: apnorris@globalnet.co.uk

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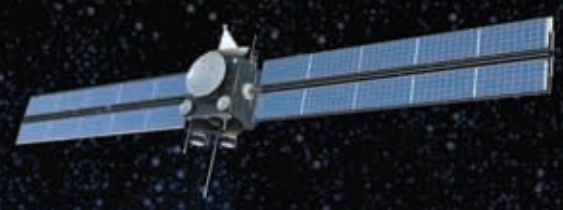

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