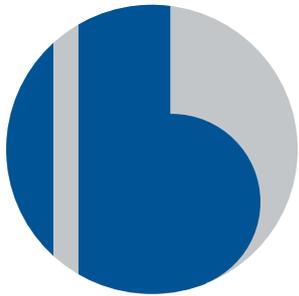


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Front Cover - Becker Marine continues to win orders for its energy saving Mewis Duct.

For example, managing director Dirk Lehmann announced that New Times Shipbuilding had ordered Mewis Ducts to be fitted on a series of 14 Suezmaxes, including newbuildings for Frontline.

"To extend the capabilities of the Becker Mewis Duct, we are currently working on offering solutions for twin screw vessels," said Lehmann.

The use of all Becker Mewis Ducts delivered to date have already lowered CO2 emissions by more than 2.8 mill tonnes worldwide, the company claimed at a presentation at SMM.

In addition, a further 375 Mewis Ducts have been ordered to be fitted on several types of vessels, the company claimed.

Overcoming three obstacles

“The three great challenges faced by the maritime shipping industry are digitalisation, climate protection and financing,” said Alfred Hartmann, President of the German Shipowners’ Association (VDR) at SMM 2016, as highlighted in *Tanker Operator’s* weekly news recently.

He said that only those who managed to overcome these central challenges had good prospects for the future in an ongoing difficult market environment - a frightening thought.

More and more shipping companies are relying on permanent data exchange between their vessels and the mainland, he explained. According to a VDR survey taken amongst its member companies, two-thirds of German shipping companies have equipped all their ships (45%) or part of their fleet (21%) with Internet access.

The path towards ‘Big Data’, ie, intelligent evaluation of large data volumes, has therefore already been embraced in many instances. The data volumes flow into the fleet operation centres ashore, where they are evaluated. Thus, the shoreside employees can support the ships’ crews in critical situations and with regard to service and maintenance.

This gives rise to a host of opportunities to operate a vessel even more economically and safely. As everywhere in the worldwide data transfer via the Internet, a key focus must also be on the need to combat cyber attacks. For this reason, Hartmann expressed his opinion that the seafarers’ nautical expertise will remain of immense significance in future.

It seems to us as though the major class societies have jumped on the cyber security bandwagon by announcing guidelines and notations (see page 19 of this issue for a

couple of initiatives announced at SMM and the Communications feature to see the amount of Satcoms hardware and software that is becoming available).

Turning to climate protection, even though more goods are transported on ships each year, the share of global CO2 emissions by shipping is declining. “A key contribution to this success story was made by the IMO, which has established a comprehensive body of rules in the past 40 years for maritime environmental protection that applies across the globe,” said Hartmann.

Binding reduction targets

With its mandatory efficiency regulations for newbuildings, shipping is the first international industry segment to implement binding reduction targets for discharge of greenhouse gases. Further parameters laid down for energy-saving ship operations are an additional factor.

As for finance, the ongoing shipping crisis is making life difficult for all parties involved. For many German banks and others for that matter, including RBS, exposure to the maritime shipping sector is no longer an option. Accordingly, traditional financing concepts frequently can no longer be implemented.

“Measures to foster climate protection and digital innovations do not come free of charge,” Hartmann said. “On the world’s financial markets, shipping companies need to use good arguments and transparency to raise funding – and they are successful in doing so, be it on the bond markets, in finance capitals like New York and Oslo, or with Chinese banks.”

He is right when he says that all these changes being implemented and those forthcoming at national and international level

will not come cheap. However, fortunately, the cost of satcoms amounts to a very small percentage of a vessel’s daily operating budget and is getting cheaper.

Environmental protection initiatives could cost quite a bit once the IMO decides when to bring in the impending sulphur cap in more equipment, ie extra fuel tanks, scrubbers, exhaust gas recirculation systems and so on.

Despite batteries, wind power and some of the other ideas being banded around, for mainstream shipping, the traditional 2 - and 4-stroke engines are not going anywhere soon, rather they will continue to be fine tuned to make them more efficient and compliant with the regulations.

We have just seen the Ballast Water Convention ratified, which could set off a chain reaction type retrofit rush. Most vessels will have to enter drydock to have the equipment installed, so for a large vessel, you could be talking \$1-\$2 mill for the docking and the equipment.

The world’s shipbuilding crisis is a bit worrying, as when it hit the UK in the 1960s, we were left with much fewer naval architects, designers and marine engineers. The same thing could happen in Asia, as the yards struggle to cope with the debt mountain.

At least Hartmann ended on an optimistic note by saying that shipping is and remains an industry with a good future. Providing everyone pulls together and remains calm in the face of what seems to be sometimes insurmountable odds, then he will be proved right.

One only had to try to navigate the packed halls of the Hamburg Messe last month to realise that there was a lot of ‘talk’ going on in the corridors and on the booths. Let us hope much of it doesn’t turn out to be just ‘hot air’.

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New legislation could impact on scrapping decisions

Will the ratification of the Ballast Water Convention mean a clear out of some of the older tanker tonnage?

It is probably too early to say but a tanker that is say 17 years old when the convention enters into force next year, would in theory have another five years before it need to be retrofitted, depending on its special survey dates under the five year drydocking cycle.

Tankers, which are able to drydock prior to its entry into force will not have to fit a BWTS until their special survey after September, 2017 and are thus likely to continue trading for the time being. However, the focus has to be on ships which are due to drydock after September 2017, and thus will be required to fit BWTS.

Over the first eight months of this year, tanker deliveries amounted to 20 mill dwt, according to Gibson Shipbrokers' figures, which take into account vessels of 25,000 dwt and over, while another 19 mill dwt are due to join the fleet over the remaining four months of 2016. A further 37 mill dwt is scheduled for delivery in 2017.

Last year, shipbuilders received orders for 50 mill dwt of tankers, just shy of the 51 mill dwt seen in the heady days of 2008. Thankfully, for the tanker market, orders placed so far this year amount to a mere 50 (25,000 dwt and above) equivalent to 7 mill dwt and this occurred in a record low newbuilding price environment.

However, Gibson said that it was aware of several owners who are considering placing orders either as an investment opportunity or just part of their fleet renewal programmes.

Some newbuilding delivery slippage can be expected, but slippage just means - delayed. So the delivery profile hangs over the tanker market like a very dark cloud, which could remain overhead for some time to come.

Since the start of this year, we have seen a mere 1.4 mill dwt of tanker sales for scrap, which is hardly surprising given the strength of most tanker markets over the first half of

2016 and the poor lightweight values on offer, the shipbroker said.

Another recent support for the VLCC sector has been 'operational' storage for both crude and fuel oil, which was as high as 38 units in May but had diminished to 22 by the beginning of September (excluding Iranian storage).

So it is difficult to find many positive things to say about the tanker market in the short term. The BWMC will have an impact on older ships, as many may not be considered viable to retrofit in terms of costs versus age and earnings potential.

In addition, next month the IMO will probably announce the timing of the implementation of the new global sulphur cap for marine fuels. Many 'pundits' believe the global maximum permissible sulphur limit on marine fuel will be 0.5% (lower limits for the ECAs) and implementation will be brought forward to 2020 from 2025.

Both these pieces of legislation will impact on owners in terms of the expenditure required to comply with these regulations, meaning that they will boost the prospects for increased scrapping, similar to the impact of the introduction of double hulls in the 1990's.

Age profile change

Going forward, the current tanker fleet age profile will start to change, with more vessels approaching scrapping age. Today, 85% of the fleet is below 15 years

of age, with 62% below 10 years. However, over the next five years, we will see an increasing number of tankers becoming over 10 years old, Gibson said.

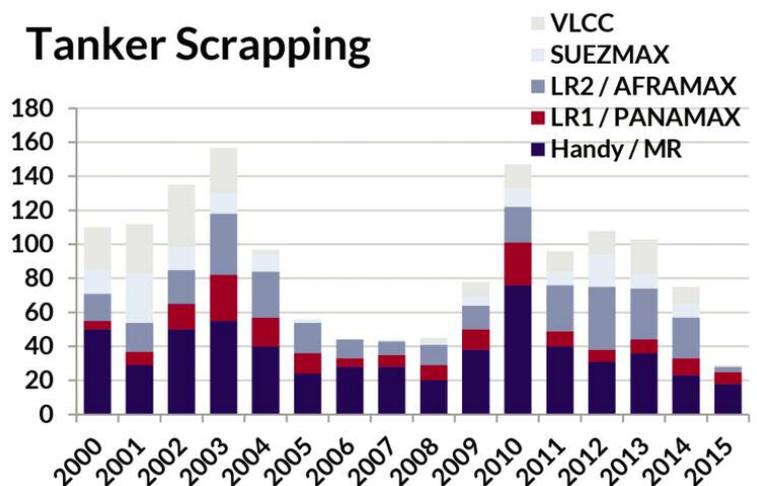
By 2020, around 50% of the fleet will still fall below 10 years of age (versus 62% today); however, the percentage of 11-15 year olds will increase substantially from around 15% currently (depending on the sector) to around 35%.

There will also be a growing number of tankers crossing into the 15-20 and over 20 year age brackets.

Much could depend on the prevailing freight market conditions that coincide with owners having to make investment decisions.

Our projections indicate that tanker earnings could bottom out over the next few years before recovering in the latter stages of the decade, therefore we may see a heavy period of scrapping in 2018/19, Gibson said. If owners believe that there will be a phase out of older, less fuel efficient tonnage, lacking ballast water systems, then it could soon become attractive to invest in replacement tonnage.

Tanker Scrapping



Source: Gibson Shipbrokers

Simulated bridge team training - the evolving standard

"How well prepared are traditional maritime institutions at providing training for modern seafarers to operate on evolving new ships with vast and varied new equipment? How relevant and appropriate are the varying BTM, BRM and CRM syllabi offered around the world?" we ask ourselves.*

Unfortunately, initial outlay for a new simulator is expensive. An average full mission bridge (FMB) of 360 deg costs over £300,000. This in conjunction with rapid changes in marine technology is putting pressure on colleges to adopt several of the 38 different manufacturers of ECDIS alone for their simulators.

This raises the questions; can these institutions reasonably keep pace with the current demands that are needed to train the industry as a whole? We have to approach the dangerous question of how effective is a bridge training course if it does not use any of the actual bridge equipment fitted to the student's vessel. Yes, we could argue that the courses can still teach the principles of navigation, but surely the closer we are to practising on our actual equipment the better.

There are currently 75,000 SOLAS registered vessels operating at sea that require bridge team and resource training. As a result of the sheer number of varying vessel types and bridge interfaces, and of course different navigation systems, there is huge demand for preparing our current and future seafarers with the most genuine realistic environment for true bridge training.

To provide a solution we first need to establish what the main problems are;

- 1) Ships now sail to and from many more coastal ports and marinas than ever before. Can all simulators replicate this?
- 2) Who is the modern seafarer and what are their training requirements? Does the modern seafarer require more training than perhaps seafarers of the past?
- 3) Does a classroom/simulator environment actually work?

There are obvious issues we seafarers face, in particular the emerging and swiftly changing world of technology that may be daunting for mariners. As a seafarer now ashore as an instructor, I have been able to look at some of these problems in greater detail and from a different perspective – and see both sides of the fence!

Maritime training facilities not only have to make international bridge equipment systems 'talk' to each other, but also overcome the issues of the multiple OS (operating systems) used at sea from Windows to Linux and Apple, so that there simulators reflect the real world. In addition, there are the varying range of ergonomic options needed when creating full mission bridge simulators, in order to create the most realistic experience for the seafarer in line with their actual vessels. This is very much the job of the training institutions to adapt and provide a solution. However, the industry must accept the implications of this investment, which is hard during difficult financial times for many.

Another significant evolution in the maritime industry is the variety of new emerging ports and the reality that modern vessels may be used to travel anywhere, at

There appears to now be technological leaps to help this.

Trevor Linn, the CEO of Turbulent, explained: "Port Creation technology has become so advanced and efficient that some companies like ours can create detailed ports tailored to the customer's needs and time frames using methods such as satellite imagery to provide as much detail to an environment as technology continues to advance."

Tanker involvement

A good example of this is a recent successful simulator project in Turkey where several sectors from tankers to tug operators co-ordinated together to construct a new simulator complex custom-built to their exact requirements that produced hundreds of miles of bespoke simulated areas to practice on. A video of this can be found at www.ecdis.org/ituSim

The third element of making modern and relevant simulator training courses is ensuring that the course and simulators reflect the needs and learning requirements of the modern seafarer. The recently published 94-page ECDIS Type Specific White Paper (free download at



Customer created 'Modular' Bridge designs allowing greater Training Academy flexibility using the online designer software courtesy of www.NauticalSimulation.com

any time. This leads to the need for training centres to be able to help seafarers practice some of these new ports prior to their arrival.

www.eMaritimeGroup.com) deals directly with the needs of a modern seafarer using a model established by an education consultant

entitled Prenskey titled 'Digital Natives, Digital Immigrants'.

An extract of the Type Specific White Paper reads: "What are the expectations of the seafarer we are procuring this equipment for, and what is their capacity to learn and use safely. If we follow Prenskey's model, a digital native seafarer is one born after 1980, with technology in his hand. Essentially, here in 2016, a 36-year old seafarer is the first generation of mariners 'in command'.

Perhaps this marks the current generation of seafarers as the 'transformation generation' and the last chance for traditional seafarers to pass on (or not) their methods, ethics, and ideology before they have gone forever."

The new bridge training syllabi is starting to reflect this notion of E-Navigation and modern seafarers concerns. It has new modules, such as simulated cyber attacks during 'at sea' exercises on the bridge team management (BTM) course, and education of cyber security. Like it or not, the average age of seafarers is steadily falling and their needs are also changing from perhaps traditional ones to more current problems.

An indicator of this is that current younger seafarers consider an internet connection and Facebook availability almost as important as pay! Research and development trials have begun to assess the impact of bridge training on both younger and older seafarers.

Admiral Nick Lambert a non-executive director at ECDIS Ltd has been a keen participant in the documentation and development of training syllabi to suit the transition to digital native seafarers. "Research through the eyes of current

seafarers enables us to really understand their cognitive behaviour and as a result we can establish and provide the right training to really harness the potential of a bridge team."

Recent reports and papers have indicated that in most cases, almost 96% of maritime

“ Research through the eyes of current seafarers enables us to really understand their cognitive behaviour and as a result we can establish and provide the right training to really harness the potential of a bridge team. ”

accidents are due to human error. The MAIB and other private investigative bodies are working together with companies and colleges to look into incidents, attempting to understand ways to eliminate or reduce the risk of these happening at sea.

Richard North, a marine Investigator from MADI (Marine Accident Digital Investigations Ltd) delivers the Investigation module of the new BTM course at ECDIS Ltd, he said: "We are all aware the marine industry is a reactive one, to attempt to curb this philosophy we must understand what is currently failing the system. By engaging shipping companies and using this information we can help provide specific training material and be proactive in raising awareness through courses, such as bridge team management."

An example of this would be the recent addition of Voyage Data Recording (VDR)

modules as part of the BTM course. The evolution of adding new modules and elements to the traditional bridge courses is what helps seafarers deal with their new concerns at sea.

New ships, new ports, new skills, new

officers and a next generation of simulators are without doubt making bridge training courses more effective. Change isn't coming; it's already here but perhaps not spread as evenly throughout the world as we would hope.

ECDIS Ltd's Mark Broster was recently made a Fellow of the Royal Institute of Navigation - 'In recognition of his significant and innovative contribution to the development of modern digital navigation and bridge team training in the global maritime industry'.

His passion is ensuring that seafarers receive the best and most comprehensive training without cutting corners to save money or time. He is not alone in this quest, and there is significant work taking place all over the world to adapt to the needs of modern ships and seafarers. It would appear that there is light at the end of the tunnel.

If we do not all adapt we run the risk of being swept away with the digital tide. As we know, technology and tide waits for no one!

***This article was written by Robert Gale, Instructor at ECDIS Ltd**



Research carried out at ECDIS Ltd's training centre in co-operation with Bournemouth University



Singaporeans do it together

The Singapore maritime community has increased its involvement in promoting the maritime industry with the help of the government and other organisations on the island city.

As one leading shipping executive said recently, “The Singapore Government has created an environment to develop asset class. Singapore is taking over from Hong Kong in the realms of finance, arbitration, law, etc.”



Andreas Sohmen-Pao is to head up an advisory committee

In addition, the various segments that make up the Singapore shipping industry also tend to stick together by forming associations and other similar initiatives.

For example, The Maritime and Port Authority of Singapore (MPA) has established the International Maritime Centre 2030 (IMC 2030) advisory committee to chart the future directions of Singapore’s IMC.

Andreas Sohmen-Pao, BW Group chairman, has been appointed to head up this committee. As part of its work, the committee will review Singapore’s IMC development strategy and identify new growth areas to enhance Singapore’s long-term competitiveness and value proposition as an IMC.

Globally, Singapore is known as one of the world’s busiest ports and a top bunkering port. Beyond her status as a premier global hub port, Singapore has been ranked by international studies to be a leading IMC.

The latest Xinhua-Baltic Exchange Shipping Centre Development Index, published in 2016, ranked Singapore as the top shipping centre among 43 global maritime hubs.

Singapore was also ranked first place as the world’s leading maritime capital in the last study conducted in 2015 by Norwegian consulting firm, Menon Economics, which benchmarked the top

maritime cities around the world.

Singapore’s IMC which comprises the shipping and maritime services sectors has grown considerably over the years, the MPA said. In 2000, there were only about 20 international shipping groups with origins from countries, including China, Denmark and Norway, which had offices in Singapore.

Today, Singapore has one of the highest concentrations of international shipping groups with more than 130 international shipping concerns, as well as leading players in shipmanagement, finance, broking, insurance, law and arbitration.

Even as Singapore is widely recognised as a leading IMC today, the maritime industry is also being driven in new directions by the increasing inter-connectedness of the economy and closer integration of global supply chains.

The rapidly evolving global economic environment poses both opportunities and challenges for Singapore’s development as an IMC. Emerging trends in the maritime and logistics sectors such as smart ships and ports, data analytics, digital platforms and other new technologies are disrupting traditional business models and creating new value chains, the MPA said.

To be better positioned for future growth, Singapore would need to stay nimble and adapt to new industry paradigms. The IMC 2030 Advisory Committee will focus on these new developments and identify cross-sector growth opportunities to strengthen Singapore’s position.

The newly established IMC 2030 advisory committee comprises global business leaders and experts in maritime and related sectors, such as global logistics, finance and technology.

Sohmen-Pao said, “I am delighted to be able to work on this initiative with a high-level group of global maritime leaders leveraging the group’s diverse expertise and knowledge, we will propose strategies for a more vibrant and competitive Singapore IMC.”

Another initiative is the Maritime Singapore Connect (MSC), formed under the Singapore Maritime Foundation in September last year as a one-stop centre to promote greater awareness of the career opportunities in the maritime sector.

This workshop is a new platform to bring together

students from across various tertiary institutions with some of the most established names in the Singapore maritime industry.

For example, at a workshop attended by Andrew Tan, CEO of the Maritime and Port Authority of Singapore (MPA) in August, he said that he understood that the event was over-subscribed.

More than 80 students attended from Singapore Polytechnic, Ngee Ann Polytechnic, Nanyang Technological University, National University of Singapore and Singapore Management University.

In his speech at the meeting Tan admitted that he had no idea about the maritime sector other than the fact that Singapore had been a trading post throughout its history, until he took over the post of MPA CEO.

He said that the maritime sector is an important pillar of the Singapore economy, contributing 7% of GDP and employing about 170,000 people, out of a total population of around 5.7 mill.

The Singapore maritime cluster comprises not only the port, but also shipping, offshore and marine engineering as well as a diverse range of maritime services such as shipbroking, ship finance, marine insurance and maritime law and arbitration.

Singapore is also a leading global hub port, including winning the status of the world’s largest bunker port. Tan said that today, Singapore has more than 130 international shipping groups spanning across most market segments.

“You will find out that the maritime sector in Singapore is a cohesive and resilient community,” he told the students. “This community has weathered several crises in the past, and emerged more resilient. It comprises not only players like MPA but also the industry associations such as the Singapore Shipping Association (SSA), Association of Singapore Marine Industries (ASMI), which work very closely with us to develop and promote the industry.”

Tripartite effort

He said that another key component of the maritime cluster is the tripartite relationship between the government, industry and unions working together to build a future pipeline of talent for the shipping sector.

A good example of the tripartite partnership coming together is on the SkillsFuture Initiative for



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the maritime sector. In June, it launched the SkillsFuture Earn and Learn Programme (ELP), which allows fresh graduates to undergo structured learning both in classroom and OJT. ELPs for port operations, seafaring deck officers and marine engineering have since been started.

To supplement the pool of the existing maritime workforce, the Maritime Career Conversion Scheme (MCCS) was also introduced to target non-traditional sources of maritime manpower and support such individuals to join selected maritime jobs.

Now that it has been formed, the MSC Office will help to connect students, job seekers and the general public with maritime employers, industry associations, government agencies and schools. As a one-stop centre, the MSC will provide Singaporeans with easy access to maritime education, training and job opportunities.

The July MSC Maritime Insights Forum was very well received, Tan claimed as over 60 education and career counsellors from schools and career centres under WDA and e2i attended, and have greatly appreciated this new platform to learn more about the different inroads to the maritime industry.

This is just one way that the MSC Office is building bridges and strengthening connections between the industry and recruitment pipelines. A new MSC online portal is to be launched later this year to make it easier for students and job seekers to get connected with maritime opportunities, Tan explained.

The MSC Career Workshop highlighted six SkillsFuture-aligned jobs in the port and shipping sectors, namely port engineer, port operations executive, shipbroker, post-fixture officer, ship charterer and shipping operations executive. These were described as critical and important maritime jobs, which command good salaries and have good career prospects, like many other careers in the maritime industry.

He then outlined three qualities that he felt were of particular importance. While we take in people of different profiles and skill sets for a wide range of roles, first, you need to be a people person. Social and interpersonal skills are relevant in any given



MPA CEO Andrew Tan

domain, but the ability to communicate well, build relationships and work as a team, are especially important, as the maritime community is essentially a relationship-based industry with a global outreach and a cosmopolitan outlook.

Second is a willingness to learn. Whether a person has some maritime knowledge or not, a key quality employers are looking out for in a candidate is a natural curiosity and willingness to pick up new skills, make new contacts and get your hands dirty.

Tan explained that this is an industry where decisions have to be made on the go, good judgement is an important as decisive action, and quick reflexes are important.

Finally, an attitude of “go-getter” and “can do” is important. The hungrier a person is, the better. It is a highly competitive industry and a candidate needs to demonstrate that he or she can seize the opportunities that come his or her way. This means having a keen nose to the market, a good sense of what’s happening, and the nimbleness to respond to changing market conditions.

Participating companies in the workshop included— Anglo-Eastern Shipmanagement (Singapore), Aries Shipbroking (Asia), BW Group, Jurong Port, Klaveness Asia, NYK Group, Pacific International Lines, PSA Corporation and The China Navigation Company.

Bunker grouping

An example of a maritime segment coming together was the forming of the a new bunker industry association focusing on the Singapore market.

The Association of Bunker Industry (Singapore) (ABIS) is a new group that will be largely focused on working with small and medium-sized bunker companies in order to enhance business service quality.

ABIS claimed to have 29 members from 24 separate companies in the bunker industry. It intends to work with national bodies to improve industry standards, as well as to develop and deliver training programmes for its members.

"The bunker group does not consist of bunker surveyors only ... Bunker-related stakeholders came together to start this (group) as we have never had a bunker association registered in Singapore before this," Kwok Fook Sing, ABIS honorary secretary, was quoted by Platts as saying. "We expect more to sign up once the Association is formally approved by the ROS (Registry of Societies)."

ABIS registered with ROS on 29th July, according to a report from Platts.

Training courses for mass flow meter (MFM) bunkering, which is due to become mandatory in Singapore in January, 2017, is thought to be a priority for the new organisation.

As a result, ABIS said it has formed a focus group to review members' existing bunker surveying

processes to ensure they align with TR48:2015, Singapore's MFM guidelines.

"They will be better prepared and ready to fulfil their essential roles when TR48 becomes mandatory on 1st January, next year," said Kwok, talking with Platts.

The focus group is believed to comprise of bunker surveyors, bunker suppliers, shipowners, bunker buyers, oil traders, and experts across various fields, including fuel testing, as well as legal counsel, and MFM vendors.

ABIS reportedly said that the focus group will also consult with Singapore's national agencies, including the MPA and trade and business agency, SPRING.

In March, MPA announced that it would offer a new series of courses on MFM bunker operations.

First safety conference

At the Safety@Sea Week, organised by the MPA, a ‘Community of Practice’ (CoP) was launched, comprising international maritime administrations, national safety councils and classification societies to share knowledge and best practices, as well as collaborate on promoting safety at sea. The CoP will commence in August, 2017 and convene biennially.

Tan said, “Recent marine incidents around the world leading to loss of lives, loss of vessels and environmental damage underscore the importance of maritime safety. Singapore hopes to play our part by working with the regional and international community to raise the standards of safety.

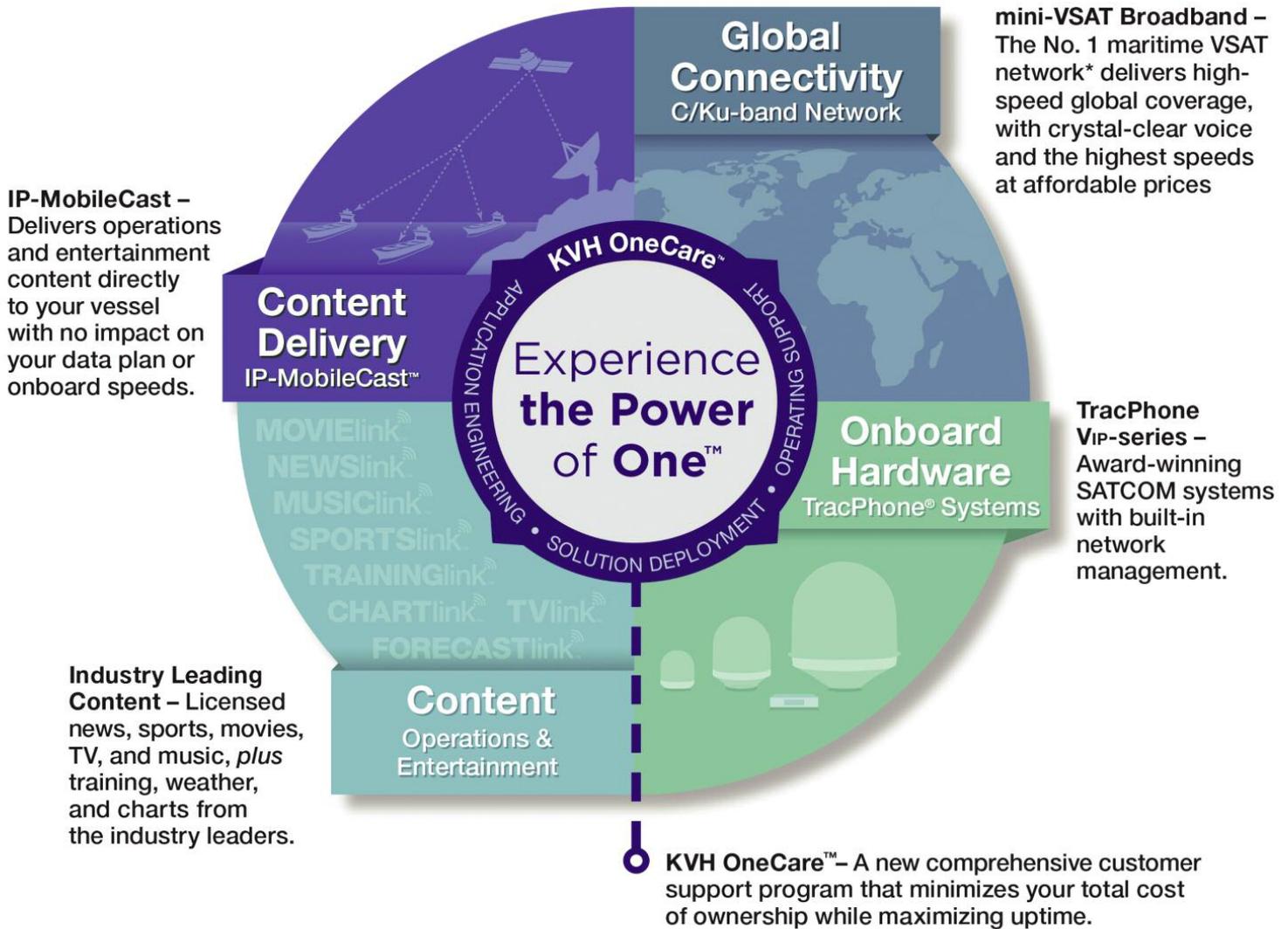
“This year, we are organising the inaugural International Safety@Sea Conference to focus attention on this issue and promote a culture of safety awareness. By building a community of good practice, we hope to disseminate best practices and foster closer co-operation between maritime authorities to prevent and respond to these incidents when they occur by adopting an integrated and multi-stakeholder approach.”

A three-part training resource package, ‘Safe Passage in the Singapore Straits’ was also launched at the event. The training package comprises two videos and an interactive computer-based training module aimed at equipping seafarers with valuable navigational information before transiting the Singapore Strait.

This package was developed jointly by the maritime authorities of Indonesia, Malaysia and Singapore. BIMCO, International Chamber of Shipping (ICS) and National Maritime Safety at Sea Council of Singapore (NMSSC) also contributed to the production of the videos.

The MPA organises the Safety@Sea Week annually to enhance maritime safety by raising safety awareness and instilling a safety-first culture. This year, Safety@Sea Week ran from 29th August to 2nd September, 2016.

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The future of maritime operations

Today, the shipping industry is awash with innovation, big data, unmanned ships, decision support tools, fuel saving applications and stress reducing voyage planning and many other 'save the day' applications.

These are all supported by all kinds of huge communications breakthroughs being promised.

However, it does appear to be a picture of uncoordinated fragmented promises that lacks a structure and a platform, according to Transas CEO Frank Coles, talking at SMM.

"Shipping, after all, needs a solution, not an application. Shipping operations is the complete picture, not just the smart phone," he said.

The company has designed a system - Transas' Harmonised Eco System of Integrated Solutions (THESIS) - which is designed to create a platform, which will be the structure to enable the remote, unmanned or manned ship or fleet.

"Some changes and adaptation are obviously necessary, but the fundamentals are in place with THESIS," Coles said.

A recently published AAWA white paper on Remote and Autonomous Ships raises a number of areas where large challenges remain unresolved. "Imagine an ocean of unmanned autonomous ships moving through an area with lots of manned less predictable smaller vessels," he warned.

A lake or bay or the waters of one country enables a controlled environment, but once outside that environment, the element of predictability changes and the risks and stakeholders change.

He claimed that THESIS sought to, create and enable the dots in ship operations to connect up, enabling the ship to be managed and operated by sharing the decision making with the fleet operations, while under the monitoring or surveillance and possible traffic control of the local, regional or international ship traffic control.

THESIS creates an eco system where the automation and technology enhance the human element, which will remain the final interpreter of a crisis situation but he or she is relieved of the tedious administrative work that is still so much a part of the operations



Transas' Frank Coles

of today's ship.

From our experience, with the growing demand for coastal surveillance support, it is inevitable that countries will want to monitor and manage the passage of all ships through their territorial waters. This is an extension of the situation today and as well as pilotage by definition will lead to ship traffic control," he said.

Fleet ops centres

The regulatory bodies for ship traffic control are not going to be the ones operating the ships. Today there is a steady growth in the setting up of fleet operations centres (FOC) with differing levels of connectivity and technology management from the shore.

An FOC concept means different things to different stakeholders, but in essence, it is a level of fleet resource management that has the potential to share with or remove decision making from the ship.

FOC will be an expanding area in the next few years and will grow in sophistication. Fleet resource training will become essential so that the land-based controllers and the ship operators will understand the dynamics and limits as the concept evolves.

STCW regulations will have to consider the training requirements and the manning regulations to distinguish and consider ships

that have an element of FOC control. The use of an academy as a core training function and operational support tool will grow in stature.

What is clear is that the FOCs and Ship Traffic Control will both require access to similar data sets, but also to data that is not necessarily relevant to each other. This data will emanate principally from the ship and the FOC, but shared across the eco- system.

Style critical

The communications level and style will be critical. Latency, cost, reliability and the effect of bad weather will all impact the use and choice of communications.

"The vision and reality of THESIS is to create a managed environment to accommodate the regulatory, cultural and technological barriers, as we strive for a safe, efficient ship operations eco-system. It removes the monotony of administration by automation; it provides shore-based oversight at the fleet and spatial level and decision support on a shared platform," Coles explained.

He also stressed that as a part of THESIS' creation, Transas has engaged with the industry, held forums, and carried out an independent survey on the development of the concepts within its structure.

While there remains some trepidation, which is to be expected, overall the results show a desire for a shared decision-making environment with more training wanted. Also not surprising was the great desire to have the paper pushing tedious roles sent ashore.

The THESIS concept offers economies of scale for ship operations. Tomorrows shipmanager could have 2,000 ships under a FOC design. Maybe even the chartering and booking of cargoes will be attached to the operations room or will we see a new business model in shipping evolve with much reduced manufactured goods transported as automated local factories begin to deliver goods?

Choosing the right tools for the VSAT world

Maritime communications providers have spent the last few years positioning themselves as one-stop shops, supplying a combination of airtime and value-added software tools as an incentive to tempt customers.*

On paper it's an appealing package, but operators need to consider if the tools they are being given are really up to the task - and also understand the risks of relying on programs that are linked to airtime.



GTM's Rob Kenworthy

The growth in the use of VSAT means shipowners are becoming accustomed to using always-on connectivity to send and receive more and more data. Ship-to-shore volumes are going through the roof, making the need for high quality shipboard software more relevant than ever.

Last year, the free email application provided by one of the industry's leading airtime providers went offline. Thousands of ships were out of touch for days as the company sought a fix to the problem. The trouble was that the users had no redress: the software was free, supplied with the airtime, so there was no support, just a long wait for a fix.

On land that wouldn't be a problem. We would switch email programs or even move to another provider if the problem persisted. On board ship it's not that easy. Using a standard webmail or client/server email would be ruinously expensive and highly inefficient.

When spending a large amount of money on airtime, choosing free email as the messaging platform is a false economy. If things go wrong, but the service is still within agreed performance criteria and software offered for free, then customers usually have no case for redress.

If the problem is bad enough to force a change of airtime supplier, users will find that they will not be able to take their free email service with them; the program, contacts and the messages are lost, with the additional disruption of advising clients, suppliers and others of a change of address.

Some VSAT airtime deals come with claims of 'unlimited usage' though in practice this is unlikely to be the reality; fair usage and committed information rates will still apply and data used 'out of bundle' will be charged at much higher rates.

So even when using VSAT there is still a need to efficiently manage bandwidth against the monthly allowance. When it is unavailable, the user will be on a 'pay as you go' backup system also likely to be at higher rates per megabyte.

Reliable email

Owners with a proactive attitude to keeping their ships connected know that expecting to do this with free software is unrealistic. Email needs to be reliable and cost effective whether the ship is using its fixed VSAT allowance or a pay as you go backup. For that reason it needs to be sourced from an independent, third party,

specialist service provider, which has made its own investment in software development, IT support and server capacity.

GTMail Plus from GTMaritime answers the requirement for email software that is robust and reliable enough for the new era of communications but is intuitive enough for crew to use with confidence.

The software is self-installing and can be configured to recognise available connections and airtime bundles for 'Least Cost Routing' and optimum availability. A simple interface removes the need for cumbersome client/server email and users can access any POP-3 compatible email address, using their corporate or GTMailPlus address.

Paying for software might seem illogical when it's being offered for free by others, but when a program without dedicated support is down - even for a few minutes - the effects are felt immediately.

GTMaritime support is available around the clock and our team is linked to the product developers so any serious problems can be addressed quickly and in depth. GTMailPlus offers users the maximum possible message compression - 14% more than the previous iteration - which means they can send the files they need at reasonable cost.

The shipping industry is spending increased amounts of money on connectivity, but choosing free email as the messaging platform risks creating a single point of failure.

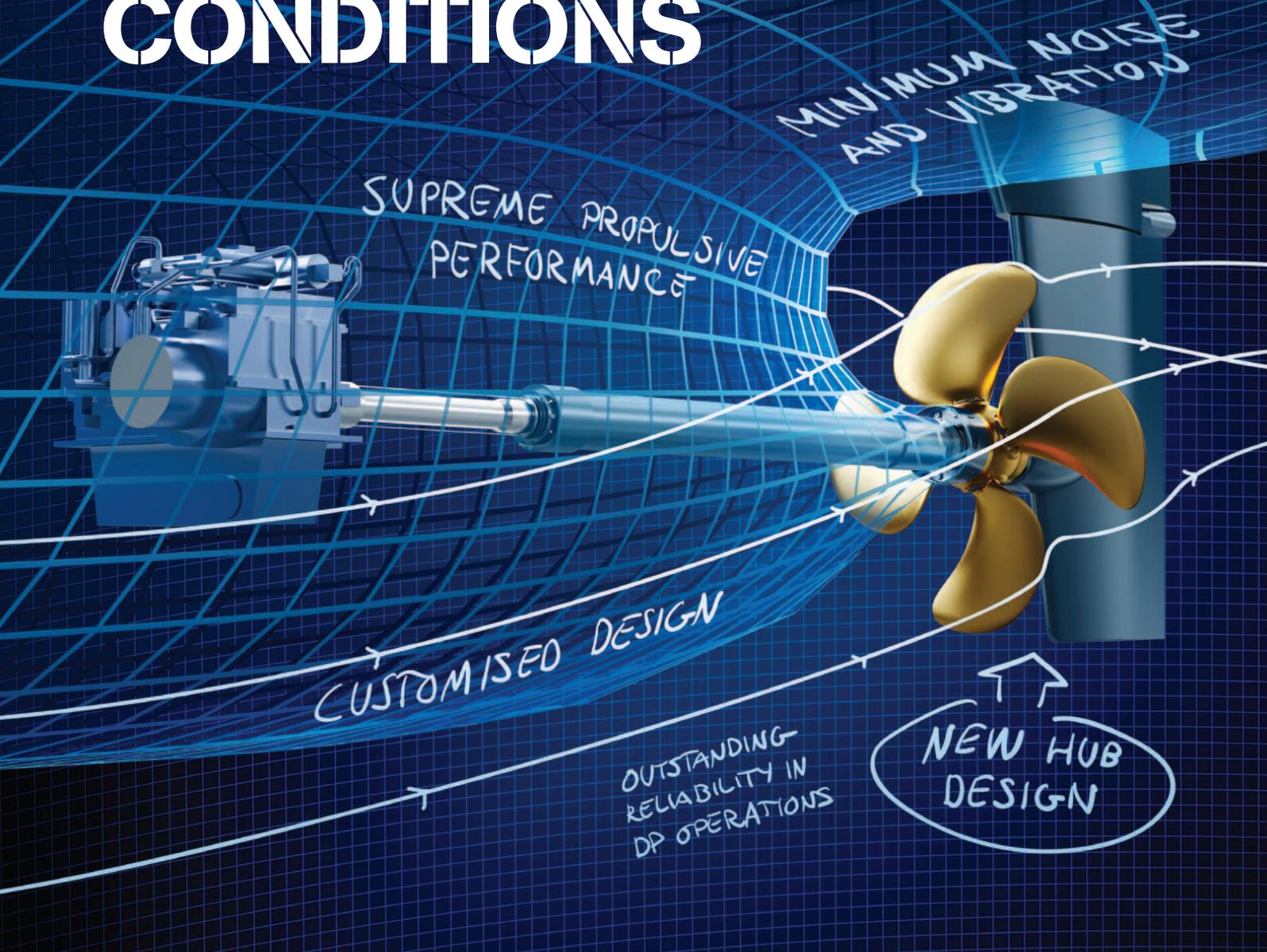
Email is a business continuity tool for ship operators and they need software they can rely on to be 100% fully operational, that is designed for satellite and which can still help to keep costs under control.

It's a cliché to say that you get what they pay for, but in today's challenging markets, it's never been more true.

**This article was written by Rob Kenworthy, Managing Director, GTMaritime.*

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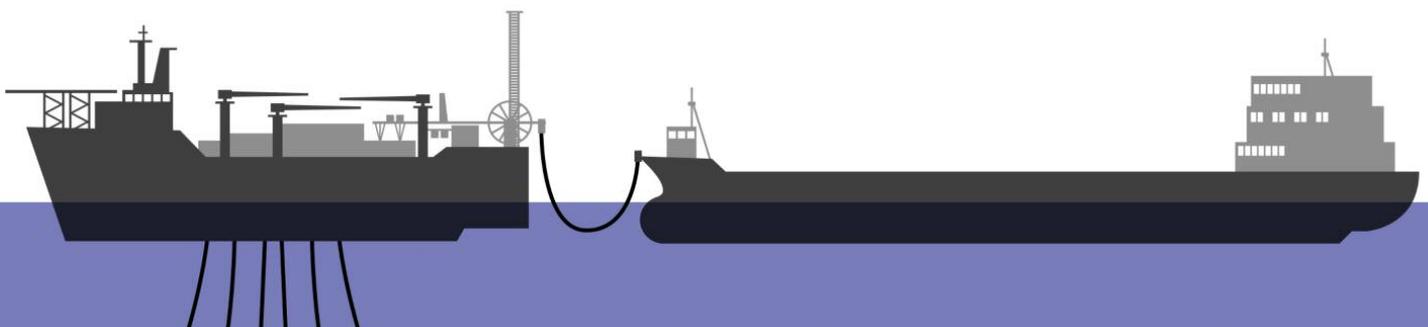
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Increasing bandwidth-decreasing costs

At the recent SMM exhibition in Hamburg, the week's major theme was digitisation.

A major part of digitalisation is connectivity driven by the ability to communicate via satellite. In the next few pages, *Tanker Operator* has highlighted some of the major announcements, both from the exhibition and elsewhere, from what seems to be an ever growing number of satcoms service providers.

We have listed the companies in strict alphabetical order and have included some of the satellite companies, as well as their service providers.

Dubai-based **Elcome International** has expanded its portfolio of satcoms services, including above-deck and below-deck equipment, software and managed airtime solutions.

Elcome is a reseller of Ku-band VSAT, Inmarsat, Iridium and Thuraya services and is also the authorised Accounting Authority (AAIC) for activation of Inmarsat terminals and LRIT conformance tests for most flag states worldwide.

The company is now offering a range of value-added services, including high-speed broadband at sea for crew and business applications, backed by 24/7 support and remote troubleshooting. Elcome's tailor made dashboards provide customers airtime monitoring, including real-time information on traffic for voice and data with associated costs.

Elcome also offers advanced marine communication and management software for ship's email, instant messaging, news, forms, position reporting, crew internet, weather, automatic file transfer and anti-virus protection in one integrated vessel portal and also provides satellite-based vessel tracking and position reporting solutions including on-demand position reports.

Global Eagle Entertainment recently named Elcome as an authorised representative for its EMC-branded global Ku-band VSAT connectivity and content. Elcome and EMC are currently working together on a major fleet wide retrofit programme for a large tanker fleet.

In addition, Elcome has established a new calibration lab and electronics component repair facility at its Dubai headquarters. The repair services are operated by Elcome subsidiary, Navicom Calibration.

"The creation of a calibration services and



component-level electronics repair subsidiary is a natural expansion of our rapidly growing business," said Jimmy Grewal, Elcome executive director. "It is the next logical step in building our company into a global technology company providing a wide range of engineering, system integration, manufacturing, testing, repairs and service solutions, not only in the maritime industry but other industrial sectors as well."

Grewal told *Tanker Operator* that the company now takes full responsibility for installation and support from various bases stretching from Egypt to Singapore.

Globecomm is integrating its Telaurus and Globecomm South Africa business units, to enhance service provision to shipowners.

Globecomm South Africa is an Inmarsat Distribution Partner and L-Band specialist supporting service providers and resellers, while Telaurus has been a communications solutions provider for many years.

Both companies will operate under the Globecomm Maritime brand, providing VSAT, L-Band and cellular communications to a fleet of over 4,000 vessels.

Globecomm's coverage was recently expanded to provide Ku-Band coverage in the South Atlantic, Ku-Band coverage in the Barents Sea

and regional C-Band services covering Asia/Pacific and the Middle East.

Intellian Technologies and Inmarsat have created a partnership aimed at accelerating the transition process in connectivity via Inmarsat's recently launched Fleet Xpress (FX) service.

This partnership will simplify the procurement and installation of shipboard equipment, enabling Inmarsat and its Value Added Resellers (VARs) to transition entire fleets of vessels in any global location as quickly and efficiently as possible, the companies said.

The Intellian FX solution will be ready for immediate installation and can be configured to include:

- Intellian GX100 (1 m) or GX60 (60 cm) above deck unit
- Intellian FB500 above deck unit
- Fully pre-configured and pre-commissioned server rack including: Intellian's all-in-one below deck terminal (BDT) with integrated GX modem, 8-port Ethernet Switch, and built in AC power supply all in a single 1U 19" rack type module; the newly released FB500R rack mountable BDT; Inmarsat's network service device (NSD), a required component for FX; external router and a managed power controller.

The 'Intellian Fleet Xpress Global Fast Rollout Programme' was due to commence on 21st September.

Marlink, one of Intellian's oldest and closest partners, will be among the first to offer the v65 for use on its new 60 cm global network, announced earlier this year.

Iridium Communications claimed that over the last 12 months, ending 30th June, 2016, the company shipped over 2,200 patented Iridium Pilot units, concluding with one of the best quarters in the company's history.

Iridium Pilot is powered by Iridium OpenPort, the company's current global broadband service and over the same 12-month period, Iridium OpenPort's subscriber base increased by 9% across the company's partner network and customer base.

Wouter Deknopper, Iridium's vice president and general manager, maritime, said. "The strong performance of Iridium Pilot, combined with Iridium's progress towards achieving certification to provide Global Maritime Distress and Safety System (GMDSS) communications, and the next-generation broadband service, Iridium Certus, on the horizon, demonstrates that Iridium is poised to take the lead in one of the fastest growing verticals in the satellite industry."

The Iridium Pilot terminal can be used as a

primary means of communication on ships or as a VSAT backup solution.

The Iridium team has also prepared for the upcoming launch of Iridium NEXT, the company's new satellite constellation, by ensuring that all Iridium Pilot terminals are forward compatible, meaning that existing equipment will work across both networks.

Iridium Certus is a new multi-service platform powered by the \$3 bill Iridium NEXT constellation with a range of speeds eventually going up to 1.4 Mbps.

The company told *Tanker Operator* that Iridium Certus will go online during the second quarter of 2017. Iridium expects to receive IMO approval to become a GMDSS provider in 2018, and to begin offering GMDSS services by 2020, while Iridium NEXT is expected to be completed by late 2017/early 2018.

Given the size of **KVH Industries**, it came as no surprise to receive several announcements.

KVH Industries' mini-VSAT Broadband service has once again been credited as the market share leader in maritime VSAT units in service.

In a recently published report, 'Maritime SATCOM Markets, 4th Edition,' by Northern Sky Research (NSR), it was claimed that KVH's mini-VSAT Broadband customers account for 29% of

the vessels using Ku-band services, which is more than double the 14% share of the nearest competitor, as of the end of 2015.

The group's mini-VSAT Broadband customers also account for 21% of the vessels using combined C/Ku-band services, with the nearest competitor at 15% share, according to the report. Earlier this year, KVH shipped its 6,000th VSAT system.

The NSR analysts also described an emerging trend toward maritime VSAT service providers developing value-added services and a range of web applications to meet the increasingly complex systems and demands of commercial vessels. The range likely to be in demand by maritime markets, according to the report, includes apps for



KVH's Brent Bruun

streaming media, e-Learning, network configuration, crew calling, and weather. KVH said that it already had apps in place for most of these applications.

In recent months, many of KVH's largest and most important fleet customers have chosen usage-based plans—including Open plans, the newest set of usage-based airtime plans offered by KVH.

Examples included the BW Group, which signed an agreement with KVH to switch from an unlimited airtime plan to Open plans for several LNG and LPG carriers that have TracPhone V11-IP systems on board.

A key reason that global fleets are selecting KVH's Open plans, which can be used with KVH's TracPhone V7-IP and TracPhone V11-IP, is the improved user experience of having consistent broadband data speeds of 3-4 Mbps, the company claimed.

With competing VSAT service providers, research has shown that broadband connection speeds for a vessel that typically uses 50 GB of data per month can average only 160 Kbps, not much faster than outdated dial-up connections.

Meanwhile, subsidiary KVH Media Group said that V.Group had renewed its subscription to its daily NEWSlink service supplying more than 500 vessels. To kick off the renewal, V.Group opted for NEWSlink's special editions covering the sports events in Rio de Janeiro.

Each ship has a choice of more than 100 NEWSlink titles ranging from country-specific daily news in more than 20 local languages, to a healthy living title, technical articles, and even a newsletter for car enthusiasts.

KVH partnered with ViaSat in 2007 to deliver high-speed Internet access to ships over the vast majority of the busiest maritime corridors.

Operating on the patented ViaSat Yonder network, KVH's mini-VSAT Broadband service offers cable modem-like speeds so customers can connect to a virtual private network, send and

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receive email with attachments, make VoIP phone calls, browse the internet, and transfer large files, as they would from a land-based business office.

To address the need for more mobile bandwidth, ViaSat is using high capacity satellites to deliver greater capacity at reduced costs.

ViaSat-1 satellite is claimed to be the highest capacity satellite in orbit today serving the North American market; in 2017, ViaSat-2 will be launched, which will double the capacity and offer seven times more coverage across the Americas and the transatlantic corridor, giving vessels operating between Europe, North America and the Gulf of Mexico access to high-speed Wi-Fi at sea; and in 2019/2020, ViaSat-3 will be launched, which will offer up to 1-Gigabit per second (Gbps) speeds for use in maritime and ocean applications.

KVH COO Brent Bruun explained that KVH is an equipment manufacturer and a service provider, illustrated by the antennas, for which the components are purchased but the equipment is put together by KVH.

He also said that storage was cheap and that bandwidths and speed would continue to increase.

The big news from **Marlink** is that it is to join forces with Telemar.

Both companies are now owned by Apax Partners and this move will create a new maritime

group to service customers with integrated offering of broadband communications, digital solutions, bridge electronics and on board maintenance

The newly combined group will generate \$450 mill in revenues with more than 800 employees worldwide serving at least one in three vessels operating globally. Both brands will initially co-exist.

With a global 24/7 help desk, specialised competence centres, a local presence on all continents and a network of 1,000 service points staffed by qualified, certified service engineers, the group will support the global maritime business to operate smarter and safer.

Earlier this year, Apax Partners completed the acquisition of Marlink.

The final closing of the transaction is subject to customary regulatory approvals and is expected to take place within the next few months. The agreement was signed on 1st August.

At a presentation in Hamburg, Marlink likened the coming together as “making networks of networks.” Marlink said that its momentum was in broadband uptake with both Fleet Xpress and KU-band VSAT having a future.

The company explained that one of its strengths was in the tanker and gas shipping markets, accounting for about half of the

installations thus far.

For example, Marlink recently won a contract to connect up 72 vessels in the NSB Niederelbe fleet, which includes tankers.

Navarino has entered into a new agreement with Inmarsat to integrate Fleet Xpress into the company’s existing service portfolio. Through this agreement, Navarino will bring more than 1,200 vessels to the FX service over a six-year period.

NSSLGlobal has signed a \$4 mill VSAT upgrade and contract extension with Teekay.

The new contract enhancement will not only double the bandwidth speeds for both the crew and operational network, but will also provide additional technical managed services to allow Teekay to be able to quickly roll out new fleet-wide applications.

The upgrade will be undertaken in the next few months across Teekay’s fleet of conventional tankers, and LNGCs totalling 125 vessels.

The company is also launching what it calls the Cruise Control Unite module.

This flexible module can be applied to any crew LAN to create a portal where the crew use bandwidth ‘vouchers’ (or a login) to access the internet.

Cruise Control Unite can be installed remotely for existing users of Cruise Control without the need for additional hardware. Bandwidth

'vouchers' can be configured to permit usage by MB/GB limit over a day, week or month (or a combination), or by time limit every 24 hrs (eg two hours per day), with users able to see their current usage and remaining balance.

The new service can be applied to Wi-Fi or fixed Ethernet access.

Satcom Global has become one of Inmarsat's latest Value Added Reseller (VAR) for its Global Xpress (GX) service.

Satcom Global is one of Inmarsat's largest FleetBroadband (FB) partners, and many of the company's existing FB customers, along with a sizeable number of XpressLink vessels, will provide a firm customer base to migrate onto Fleet Xpress (FX).

In preparation for delivery of the extension of their service portfolio, Satcom Global has GX-trained the in-house engineers to be accredited to carry out installations worldwide.

Satcom Global, has also signed a partnership agreement with Intellian covering the global supply and distribution of maritime satellite equipment.

Under the partnership, Satcom Global will have access to Intellian's full range of Ku-Band, Ka-

Band and FleetBroadband hardware.

SpeedCast has announced the acquisition of WINS for €60 mill, a European-based provider of broadband satellite communications and IT solutions for the maritime sector.

WINS provides services to over 2,000 merchant vessels with a portfolio of VSAT, L-Band, Accounting Authority Services and International Maritime GSM service.

"We are very pleased to welcome WINS to our family," SpeedCast CEO, Pierre-Jean Beylier,



Speedcast's Pierre-Jean Beylier

commented. "This acquisition is further affirmation of SpeedCast's growth strategies, and is a significant milestone for us. WINS brings a strong local presence in Germany, a major maritime market."

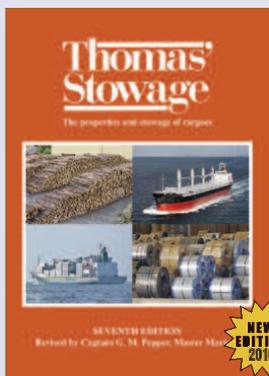
SpeedCast also announced revenue of \$101.5 mill for the first six months of this year, a 41% period-on-period increase. Service revenues grew 54% over the same period last year.

On 1st April, 2016, SpeedCast also completed the acquisition of NewCom International, which opened a new growth area in the South and Central American regions and strengthened SpeedCast's presence in North America with a major office and teleport in Miami.

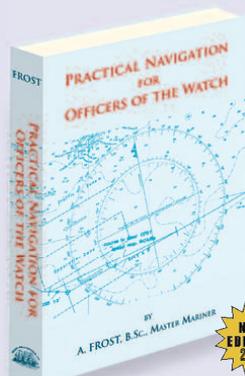
On 1st July, 2016, the acquisition of ST Teleport was completed, adding infrastructure in Singapore.

Beylier told *Tanker Operator* that that in 10 years time most large vessels will be fitted with VSAT, as it will be the standard for seafarers. He also thought that the satcoms sector was now consolidating to a few large players, being a more mature industry.

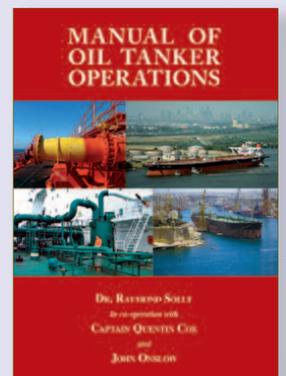
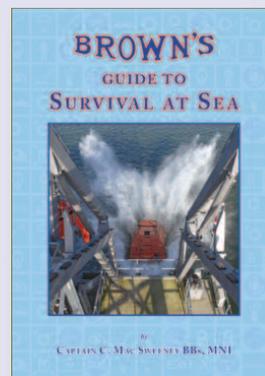
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Are your assets secure?

Like it or not, the question of cyber security is here to stay. In the maritime sector, advice and guidelines on how to deal with the threat are mainly coming from the class societies.

At SMM, ABS unveiled what was claimed to be the first comprehensive cyber security certification and optional notations for marine and offshore assets and facilities.

Introduced in early 2016, the patented ABS CyberSafety series is a risk-based management programme for asset owners to apply best practice approaches to cyber security, automated systems safety, data integrity and software verification.

“Our unique approach to cyber safety charts a new path, delivering wider and deeper classification services as technology evolves and becomes more sophisticated, reaching far beyond simple compliance and directly to asset and facility security,” said ABS CTO, Howard Fireman, at a presentation in Hamburg. “The ABS CyberSafety program provides the only actionable guidance for addressing and assessing cyber-enabled systems that emphasise human, systems and environmental safety.”

New volume releases and revisions in the series include:

Volume 1 – Guidance notes on the application of cyber security principles to marine and offshore operations (revised and expanded).

Volume 2 – Guide for cyber security Implementation for the marine and offshore industries.

Volume 3 – Guidance notes on data integrity for marine and offshore operations.

Volume 4 – Guide for software systems verification.

Volume 5 – Guidance notes on software provider conformity programme.

Other volumes will follow in the near future, Fireman said.

From the ABS Guides, optional certification and class notations can be obtained to verify cyber security plans and programs for assets and facilities, as well as integrated and non-integrated control systems, including factors for software quality management, product design assessment and unit software systems.

“We look beyond the step-by-step approach and deliver an integrated, holistic view of systems, assets and facilities to provide confidence for owners and operators that a



ABS' Howard Fireman

multi-dimensional safety component is well-engineered and operated competently,” said Fireman.

He said that the biggest threat was carelessness - the human element.

ABS also established a cyber safety laboratory earlier this year in Houston and staffed it with a team of global cyber experts to expand the safety scope and verify cyber systems that look beyond physical asset safety.

Fireman was appointed as CTO just over 18 months ago and he said his task was to bring new technologies to the table

Recommended practice

Also in Hamburg, DNV GL launched cyber security recommended practice (RP).

Entitled ‘Cyber Security Resilience Management’ the idea was developed in co-operation with customers. The RP provides guidance on risk assessment, general improvements to cyber security, and the verification of security improvements and management systems.

“With ships and mobile offshore units becoming increasingly reliant on software-dependent systems, cyber security is an important operational and safety issue for the maritime world,” said Knut Ørbeck-Nilssen, DNV GL – Maritime CEO, in a presentation.

It covers some of the most common threats to maritime assets, such as vulnerabilities in ECDIS, the manipulation of AIS tracking data, as well as jamming and spoofing of GPS and other satellite-based tracking systems.

The RP differentiates between unintentional infections and targeted threats. Unintentional infections include incidents, such as software infections through malware, as well as weaknesses in software, which can be caused by the misconfiguration of equipment and software, or faulty software designs.

Targeted threats include external cyber-attacks by hackers, who can infiltrate systems through phishing, social engineering, or by exploiting weaknesses in control systems. This also looks at the possibility of cyber-attacks by disgruntled employees and their ability to circumvent physical access controls.

To help the industry prepare for achieving compliance to internationally recognised standards, the RP provides guidance on how to apply ISO/IEC-27001 and ISA-99/IEC-62443 standards. ISA-99/IEC 62443 is the recognised standard for security of the industrial control systems in the operational technology (OT) domain of organisations.

Certification to the ISO/IEC-27001 standard demonstrates that a company has a process-driven approach for establishing, implementing, operating, monitoring, reviewing, maintaining, and improving their information security management system.

DNV GL offers certification to ISO/IEC-27001, as well as to the ISO-22301 standard for business continuity management, which demonstrates a business’ preparedness for a major incident or disaster.

In addition to the RP, DNV GL has developed services in close collaboration with several major shipowners aimed at enhancing the cyber security of their assets. DNV GL’s Maritime Academy offers e-learning modules aimed at increasing the awareness for cyber security related issues among crews and shore staff.

“Studies have found that the human element still accounts for 90% of all cyber security breaches, which means that regular trainings and awareness campaigns are central to any cyber security initiative,” said Ørbeck-Nilssen.

He said that not one solution fits all. DNV GL’s RP is based on the barrier management approach and the class society has launched a self-assessment app and an e-learning module.

Turkey remains major market for APC

Chemical tankers have always been one of the mainstays for the Turkish shipbuilding industry.



These shipowners have typically specified the patented MarineLine from Advanced Polymer Coating for the cargo tank coatings. Down the years, MarineLine has achieved 85 to

90% market share of all chemical tanker newbuilds and tank retrofits/recoatings in Turkey. According to MarineLine's Turkish head, Capt Koray Karagoz, President of MarineLine Turkiye, based at Tuzla, this year MarineLine coating has

reached 100% market share of the chemical tanker cargo tank coating market.

There are many reasons for this success, said Capt Karagoz. "Our reputation in Turkey is excellent. All the shipowners and yards like our

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coating and our company and services. We have built strong relationships, backed by superb performance of the MarineLine coating system, which delivers profitable return on investment (ROI) every day.”

Ship operators using MarineLine-coated vessels have confirmed this, explaining that there is less cleaning time required, less chemicals used during the cleaning procedure, and less fuel used during cleaning. This provides substantial reductions in CO₂, SO_x and NO_x emissions.

In the past few months, there have been some political issues in Turkey, however, Capt Karagoz has not seen this spill over into the shipbuilding sector. “Shipping is a worldwide business, so Turkey’s localised issues do not readily affect Turkish shipbuilding. It remains business as usual.”

To support this claim, he reported a solid orderbook now and in future months for MarineLine cargo tank coating projects, encompassing 18 chemical tankers plus another eight options on additional ships.

Some of these projects are newbuilds, while the re-coating work involves removing competitors’ epoxy tank coatings and replacing these with MarineLine:

Capt Karagoz added, “Shipyards in Turkey are noted for offering competitively priced newbuild and re-recoating/repair services to shipowners around the world. These shipyards and owners have come to trust MarineLine as the best solution for chemical carriers who want to employ coated cargo tanks to transport the full IMO range.”

Recent orders

- Two 5,850 dwt newbuilds for Armona Denizcilik.
- Six 8,000 dwt, plus two options, re-coatings for Scot Tanker.
- One 6,000 dwt newbuild for Nakkas Shipping & Trading
- One 6,000 dwt vessel re-coating for Torlak Shipyard.
- One 8,400 dwt, plus six options, newbuilds for Medmarine.
- Three repairs or re-coatings for Teckne Shipping.
- One 10,800 dwt, plus two 14,000 dwt re-coatings, for Transal Shipping.
- One 5,700 dwt project for Borealis Shipping.

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MDT works on next generation 2-strokes

MAN Diesel & Turbo (MDT) has added three new engines to its large-bore engine programme.

All the engines are weight-optimised, compared to their Mk 9 counterparts, and form the new design platform for a new Mk 10 engine portfolio.

Key to the new portfolio is the development of the TCEV (top controlled exhaust valve) and FBIV (fuel booster injection valve) components.

The new units are:

- MAN B&W G90ME-C10 type (delivering 6,240 kW per cylinder).
- MAN B&W S60ME-C10 type (delivering 2,490 kW per cylinder).
- MAN B&W S70ME-C10 type (delivering 3,430 kW per cylinder).

These are the first of a new generation that ultimately will involve the upgrading of all S- and G-engines to the Mk 10 platform.

Ole Grøne, MDT's senior vice president sales and promotion, said: "For some years now, our primary R&D target has been to develop the next generation of our ME platform. During this time, the goal has been to utilise the full potential of the ME engine concept by reducing the complexity of the hydraulic system and increase system performance. The new TCEV and FBIV technologies have been developed within this scope."

The design initiative delivers a specific weight reduction of up to 10% per kW, and also accommodates a higher Pmax, which also contributes to a reduction in fuel consumption.

Grøne added: "We are confident that the market will embrace the benefits of the new platform, as it represents a simpler design with fewer components, a reduced total weight, and a reduced fuel consumption. It is an improvement not only for shipowners, but also for our licensees."

The Mk 10 platform is based on a much more mass-optimised design scenario that results in lighter engines with reduced overall length, width and height compared to its Mk 9 counterpart.

Integration of the new technologies leads to a considerable weight reduction, because the baseplate, HCU, pressure booster, high-pressure fuel oil pipes and exhaust actuator are

eliminated. The two technologies also offer improved hydraulic dynamics and flexibility.

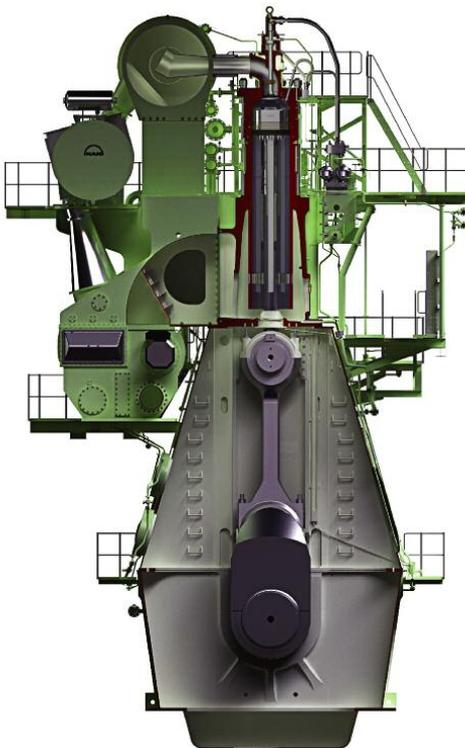
MDT said that the TCEV/FBIV system is entering the final confirmation stage and has already operated in service for more than 2,000 hours as a system, and the FBIVs separately for more than 10,000 hours – both on a 50-cm bore engine.

G-type milestone

Meanwhile, just six years after its introduction, MDT has confirmed an order for the 1,500th G-type engine.

Greek shipowner, Almi Tankers, will take delivery of the ultra-long-stroke 7G80ME-C9 type as prime movers for two 317,000-dwt VLCCs to be built by Hyundai Heavy Industries Group. Coincidentally, Almi Tankers also placed the order for the very first G-type engine.

The latest VLCCs are due for delivery in February and April, 2018, respectively. Both engines will be Tier III-compatible.



A schematic of an MAN G80ME-C9

Grøne said: "The success of our ultra-long-stroke portfolio is a fantastic story for us. That we have already clinched orders for 1,500 G-type engines since the G-type's launch just a few short years ago is remarkable; the G-type is easily the fastest selling engine we have ever had."

The new order is similar to the order that Almi placed in 2012 when it opted for two 7G80ME-C9 units for another two VLCCs. HHI reported that the engine, at that time the world's first MAN B&W 7G80ME-C9 unit, passed its official shop test in January, 2013.

The G-series of engines, together with the established S-series of engines, constitutes MDT's modern, 2-stroke engine programme and cover similar power ranges in different rev/min brackets.

Both series are constantly maintained and upgraded to cater for the needs of both hull-line-optimised vessels and propeller-rev/min-optimised vessels.

MDT's G-type programme was introduced to the market in October, 2010. The 'G' prefix means that it has a design that follows the principles of the large-bore, Mk 9 engine series that was introduced in 2006 with an ultra-long stroke that reduces engine speed, thereby paving the way for ship designs with high-efficiency.

Following efficiency optimisation trends in the market, MDT thoroughly evaluated the possibility of using even larger propellers and thereby engines with even lower speeds for the propulsion of tankers and bulk carriers.

These type of vessels may be more compatible with propellers with larger diameters than designs thus far used, and therefore able to facilitate higher efficiencies following adaptation of the aft-hull design to accommodate a larger propeller.

It is estimated that such updated aft-ship designs with the G-series of engines offer potential fuel-consumption savings of some 4-7%, with a similar reduction in CO₂ emissions.

Simultaneously, the engine can also achieve a high thermal efficiency using the latest engine process parameters and design features.

Wärtsilä to supply a complete package for tanker newbuildings

Wärtsilä signed contracts to supply an equipment package for four newbuilding tankers during the second quarter of this year.

The ships are to be built at the Avic Dingheng shipyard in China for three Swedish owners - Furetank (two vessels), Älvtank, and Thun Tankers, a fully owned subsidiary of Thunbolagen.

They will be commercially managed by Furetank Chartering in the Gothia Tanker Alliance. The ships will meet the IMO's Tier III requirements and will be fuelled primarily by liquefied natural gas (LNG).

For each vessel, Wärtsilä will supply a 9-cylinder Wärtsilä 34DF dual-fuel main engine, two Wärtsilä Auxpac 20 auxiliary engines, the gas valve unit, a controllable pitch propeller (CPP) compliant with Ice Class 1A, a high performance nozzle, a Wärtsilä Energopac rudder system, a Wärtsilä selective catalytic reduction (SCR) system for the auxiliary engines, 12 Wärtsilä deepwell cargo pumps, and two Wärtsilä deepwell ballast pumps with a frequency control system.

Wärtsilä will also supply the vessels with a gearbox and shaft alternator having 'take-me-home' functionality. This provides propulsion power to the auxiliary engine should the main engine be out of operation for any reason,



thus allowing the vessel to return safely to port.

Delivery of the Wärtsilä equipment is scheduled to commence in spring 2017.

In order to achieve optimal propulsion

efficiency for these vessels, Wärtsilä used its OPTI design methodology. This uses very accurate information via computational fluid dynamics (CFD) analysis to calculate the performance of the propeller, nozzle and

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rudder, including their interaction with the vessel's hull, thereby enabling a design that gives a perfect match between the various propulsion elements, the company claimed.

"Wärtsilä is the only company in the world capable of providing such a comprehensive scope of marine solutions from its own portfolio. Being a total solutions provider brings significant added value to our customers, since delivery and scheduling risks are reduced, and the various systems can be integrated to achieve optimal performance and lower operating costs," said Aaron Bresnahan, Wärtsilä Marine Solutions vice president of sales.

"These environmentally friendly tankers will run mainly on LNG fuel. No other company can match Wärtsilä's experience and reference list in LNG solutions, and we are very confident that the Wärtsilä technology and broad range of solutions are the right choice," said Lars Höglund, Furetank managing director.

The vessels will be built to a design, developed by Swedish ship designer FKAB together with Furetank. They feature a special focus on minimising the impact on the environment, with a close to 50% reduction in

CO2 emissions over similar class vessels built between 2002 and 2012.

In addition, Wärtsilä has launched the Wärtsilä Sea-Master system for monitoring the condition of tail shaft equipment. This system uses digital technology to monitor shaft bearings and seals to help customers maximise uptime and lower lifecycle costs of vessel shaft lines.

The new system collects real-time data from the vessel's tail shaft, providing valuable information about the operational health of the tail shaft equipment. It can be applied to open and closed loop water-lubricated stern tubes, as well as closed loop oil-lubricated stern tubes.

The solution uses digital technology coupled with composite components and existing seals, resulting in a combination that helps customers manage their assets, maximise uptime and lower lifecycle costs..

Wärtsilä Sea-Master also provides an early warning of possible rising failure issues with alarms fitted to critical path components, including bearing temperatures and lubrication rates.

The system has been approved by relevant classification societies and is available for all

vessel segments and ship types as well as for newbuild and retrofit applications.

"We used our existing condition monitoring technology to develop this new system and service, which applies proven data analysis methodology to deliver not only information but careful expert analysis and performance-enhancing recommendations as well.

Our customers get a window into the operational health of their tail shaft and gain knowledge about, for instance, the wear rates of the equipment. This allows for more accurate maintenance planning and reduces unforeseen risks," said Matthew Bignell, sales development manager, Wärtsilä Seals & Bearings.

For water-lubricated systems, the tail shaft of a vessel is typically removed in drydock and inspected by a classification society every five years. By capturing real-time data with trending, Sea-Master allows vessel operators to provide reliable information about the condition of the tail shaft for classification society surveyors without having to withdraw the tail shaft extending the interval between removals and thereby reducing unnecessary downtime.

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One lube for all

A new approach to lube technology means that new single oil solution Talusia Optima can be used with ultra-low sulphur distillate fuels and high sulphur heavy fuel oil claimed Serge Dal Farra, Global Marketing Manager, Total Lubmarine at SMM.

Total Lubmarine has long been an advocate of a single grade of lube oil flexible enough to deal with a range of fuel types and operating conditions.

“We were the company that first introduced Talusia Universal in 2007, a lube capable of dealing with fuels with a sulphur content of between 0.5% - 3.5%,” he said.

But the introduction of the latest generation of eco-spec 2-stroke engines, combined with 0.1% sulphur caps, meant that once again many ship operators were forced to carry two grades of lube on board to deal with two very different fuel types.

Multiple lube types mean an unwanted layer of complexity in both the engine room and the fleet manager’s office.

Using the experience gained from development of Talusia Universal, Talusia Optima is now being used to lubricate modern 2-stroke engines burning fuel with a sulphur content ranging from 0-3.5%.

This is the first time that a single grade of lube oil can cope with such a wide range of fuels, used by most modern Tier III engines, the company claimed.

The solution is based on an entirely new kind of chemistry and way of thinking about the molecular structure of the lube. Rather than using mainly mineral components as the base of the lube, Talusia Optima is made up of a high proportion of pure organic molecules of high basicity, combined with high quality mineral components.

The ability of Total Lubmarine’s patented Ash-free Neutralising Molecules (ANM) to neutralise acidity and clean cylinders is quite remarkable, the



company said.

Compared to other BN 100 conventional cylinder oils, Talusia Optima neutralises acidity faster and more effectively. Many thousands of hours of sea-trials have demonstrated a higher resistance to adhesive wear and a 30% better piston-coating wear rate.

At the same time, Talusia Optima is a clean lube that offers high levels of detergency and cleanliness. For example, after more than 4,000 hours of use in a vessel’s engine, final inspections found perfect piston and liner cleanliness. When used in combination with distillate fuels with less than 0.1% sulphur content, ring packs and piston top lands were found to be free of hard deposits.

Frequent and regular drain oil analysis during

sea trials showed residual BN was always higher than that of conventional lubricants and total iron content always lower without any hard ash deposit formation.

Tanker engineers face increasingly complex challenges. Since the introduction of new ECA legislation in January, 2015, fuel changes and corresponding lube changes that occur whenever ships leave or enter ECAs have given rise to another set of pressures, as the crew has to quickly undertake a lube change without causing any engine damage.

Shore teams and vessel engineers have been testing Talusia Optima since January, 2015 and have reported reduced workloads by avoiding the need for lube oil switches. The number of lube

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orders has been reduced; bunkering operations simplified and the risk of human error also minimised. Customers have also made savings by reducing the number of lubricants they use and disposing of corresponding lube storage, stock and equipment costs.

It is possible to reduce lube oil feed rate (LOFR) without compromising on engine protection. With a well-monitored LOFR reduction programme and depending on a vessel's engine type and operating conditions, optimisation of up to 30% can be expected.

Total Lubmarine has received a no objection letter from Winterthur Gas & Diesel (WinGD) for the use of its cylinder lubricant Talusia Optima with the whole range of Wärtsilä engines, including the Wärtsilä RTA, RT-flex and X engines, as well as the Sulzer 2-stroke engines.

Shell Marine

Following its formulation and exhaustive laboratory testing in 2015, the new Shell Alexia 140 has successfully completed over six months of shipboard trials with a Shell Marine customer.

"We are responding rapidly to the changing needs of the industry, helping our customers to cope with their full range of operating conditions," said Jan Toschka, Shell Marine general manager. "This latest development underpins our commitment to the industry and its future. We have our own in-house testing capability and extensive field experience, coupled with the monitoring, analysis and advisory services to respond to the market with proven and comprehensive solutions."

Shell Alexia 140, has a high BN of 140. It is targeted for use on its own or as part of an on board lubricant blending or mixing system. MAN Diesel and Turbo (MDT) told this year's CIMAC in Helsinki that it had been trialling 'ACOM' (Automated Cylinder Oil Mixing), the 2-stroke marine engine major's pilot scheme to establish best practice in matching lubricant BN to fuel sulphur content whilst minimising lubricant feed rates.

A Shell Marine customer was selected for the first batch of trials.

"Major OEMs now recommend cylinder drain oil analysis as a way for shipowners to optimise feed rates as it allows them to strike the right balance between corrosion protection and minimised oil consumption," said Toschka.

Shell Marine also previewed its revitalised Shell LubeMonitor service at SMM. The revamped service will be simpler, faster and better, through a new software package called Marine Connect, which is designed to enhance data management and reporting functions, the company claimed.

It runs in tandem with the Shell Rapid Lubricants Analysis (RLA) cylinder check, which has been used to take over 50,000 cylinder drain

oils samples to date, identifying potential oil or equipment issues before they become critical. Shell Marine expects to analyse round 18,000 cylinder drain oil samples in 2016 alone.

RSC Bio Solutions

RSC Bio Solutions, a producer of environmentally acceptable lubricants (EALs) and cleaners, launched the patented FUTERRA, a new product line of bio-based lubricants at SMM.

Claimed to be only hydrocarbon renewable EAL derived from a plant-based material, FUTERRA was designed to outperform other products on the market while meeting the most stringent global environmental regulations at a more attractive price.

FUTERRA is claimed to offer superior performance in both wet and dry environments, holds up to extreme conditions in contact with water in high-pressure and extreme temperatures and has higher durability compared to other EALs, which results in greater system efficiency, fewer change-outs and extended equipment life.

"FUTERRA is the clear choice for risk mitigation in sensitive areas without sacrificing performance, quality or cost-effectiveness," said Mike Guggenheimer, president and CEO, RSC Bio Solutions. "We believe that forward-looking and operationally efficient shipmanagement teams will be keenly interested in this new technology as they anticipate future trends."

"FUTERRA is truly a breakthrough in our industry," said Dr Bernie Roell, vice president of research & development, RSC Bio Solutions. "It outperforms all other EALs currently on the market, meets OEM specifications and is the new standard for EALs in the marine industry."

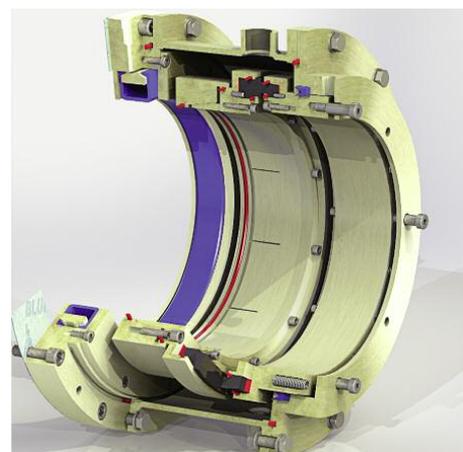
Thordon Bearings

Thordon Bearings has unveiled - SeaThigor - what is potentially the marine industry's safest, most robust shaft seal as part of a programme of enhancements underway to optimise its COMPAC seawater lubricated propeller shaft bearing system.

Targeting high quality, low leakage, long life and minimum maintenance, the new SeaThigor forward seal was unveiled at SMM. It is fitted with a secondary seal module that provides a Safe-Return-To-Port capability in the event of a face failure of the primary seal.

After several years of development and testing, SeaThigor safety seal design incorporates a pneumatically activated inflatable element to stop water ingress along the shaft, allowing for the repair of the main seal whilst at sea, or allows for the shaft to turn at a lower speed so the vessel can safely return to port for primary seal repair or replacement.

It can function as both a dynamic and static seal to provide water-tight integrity around a shaft,



SeaThigor shaft seal

while allowing the propeller shaft to rotate in both directions across a range of shaft speeds.

With inside the engine room application and typically mounted on a rear bulkhead or stern tube flange, the modular design incorporates two wear-resistant silicon carbide seal faces that contact each other to provide primary static and dynamic sealing.

"The SeaThigor abrasion resistant sealing faces achieve dynamic sealing with leak and maintenance free operation," said Andy Edwards, Thordon Bearings commercial director.

At the Lloyd's Register type approval trials last year, two 443 mm shaft diameter SeaThigor seals were tested simultaneously on Thordon's marine seal test rig, in Burlington, Canada. After extensive testing, the Safe-Return-To-Port emergency seal showed no sign of wear after 15 days of use. SeaThigor received LR and DNV-GL type approval this summer.

"Thordon Bearings will install the SeaThigor to an undisclosed vessel during a scheduled drydocking later this year," said Edwards. "We are seeing a resurgence of interest in seawater lubricated propeller shaft bearing systems and the SeaThigor is an important part of this. Market interest so far has been beyond expectation, with a number of commercial ship operators making tentative enquiries."

Thordon Bearings has also introduced a global service and support (GSS) service to assist shipowners, shipbuilders and repair yards with the installation, commissioning, maintenance and shaft/stern tube alignment services of the full range of oil and grease-free company propeller shaft, rudder and deck equipment products.

With a new global service network operating 24/7 in more than 100 countries, the Thordon GSS network is intended to show shipyards and repairers the simplicity of installing or retrofitting Thordon Bearing products and systems, including the COMPAC water-lubricated propeller shaft bearing system, while providing operators with comprehensive support for all their Thordon applications.

Integrated analytical software program launched

ABB has launched an updated integrated maritime software analytics platform.

The system brings together ABB's EMMA and OCTOPUS applications into one software suite, under the banner of OCTOPUS.

For the first time, external information, such as weather or cargo load parameters, can be combined with the ships process and propulsion information. OCTOPUS acts as a digital hub for vessel data that can improve efficiency across a whole fleet and it can gather an unlimited amount of signals from on board sensors, ABB claimed.

The company said that the shipping industry is benefiting from increased connectivity with smart sensors able to transmit performance data to shore. The digitalisation of shipping has led to stronger shoreside operations.

ABB claimed to be in a unique position to leverage this trend, as it manufactures hardware with sensors and many of the measuring instruments that feed information to OCTOPUS. The company said that it had already addressed the industry's approach to service and drydockings through its integrated operations concept that allow ships, onshore operations and ABB to operate on the same information and communication technology platform.

"ABB has been quick to recognise the important role digitalisation and software have to play in the shipping industry and OCTOPUS has been deployed on a variety of ship types, helping vessels to operate more safely and efficiently," said Juha Koskela, managing director of ABB's Marine and Ports business.

OCTOPUS is currently installed on more than 400 vessels and the newly expanded version is expected to increase its appeal, the company said. On the same platform, users can access a range of information including data about a vessels trim, bunker transfer, fuel consumption, power plant optimisation, electricity use, speed advice, propulsion power analysis and hull cleanliness.

By combining platforms into a single interface and leveraging the Internet of Things, Services and People (IoTSP), OCTOPUS can help ship's officers and engineers to make real time decisions enabling them to be proactive in safety and efficiency terms, resulting in more immediate benefits than just traditional post voyage analysis.

Details about the impact of external factors, such as weather, against the loading computer parameters and propulsion data can allow shore staff to assess the safety and full cost of future charters as well as providing suitable route options and delivery dates. Ashore, the historic voyage data can contribute to raising efficiency across a whole fleet by intelligent analytics.

"For the first time we are bringing together two important features in the marine industry, energy efficiency optimisation and safe voyage execution, into the same software and analytics platform," said Mikko Lepistö, ABB's Senior Vice President of Vessel Information and Control. "One of the advantages of OCTOPUS is that it is scalable, meaning it can be adapted for vessels depending on the complexity. One aspect that remains largely



An OCTOPUS display unchanged for ABB's marine software across vessel types is the short payback, which is around one year."

Turbocharger app

Meanwhile another part of the company, ABB Turbocharging, has developed a new digital application to identify the potential operational risks of replacing turbocharger parts with non-original components.

The app uses data from turbocharger failure scenario simulations to calculate the impact of parts from manufacturers that do not fit ABB turbocharger specifications.

It addresses a widely acknowledged and persistent issue in the industry, where use of parts supplied by third parties can compromise or even harm marine equipment.

Showing a 3-D animated image of a latest generation turbocharger for medium speed engines, the app focuses specifically on six components: turbine nozzle ring; impeller blades of the compressor wheel; the compressor casing; compressor wheel; turbine wheel; and turbine casing.



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Kongsberg retrofits VLCC control system

Kongsberg Maritime has completed an extensive refit of a 21-year-old main engine remote control system on board a VLCC during the vessel's scheduled drydocking.

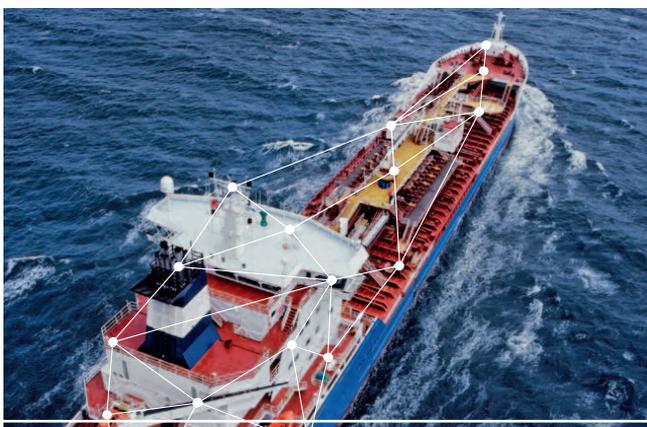
The original system installed was decommissioned and the latest Kongsberg AutoChief 600 was installed by a dedicated refit team.

The AutoChief 600 is designed to manage all control, safety and alarm functions necessary for operating the main engine and all other accessories for propulsion control from a single station on the bridge. The system is based on a modular concept that allows flexibility in system architecture, covering a range from the most simplified to the most sophisticated propulsion control system available.

A flexible and modular design makes the AutoChief 600 suited for retrofitting of older remote control systems. It employs a simple to use touch



An AutoChief 600 control system



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screen computer providing access to all functions and data.

Main variables such as rev/min, pitch, start air and scavenging air pressure, and engine state are easy to access, while several levels of control are available to distinguish between user groups. The system uses a family of 'distributed processing units' (DPU) interconnected by a redundant field-bus, which allows for flexible installation for newbuildings and retrofit projects, as each unit can be positioned near the system to be controlled, into third party electric cabinets, connection boxes and on the main engine.

Kongsberg claimed that the AutoChief 600 gives significant opportunities to optimise engine efficiency and reduce the vessel's environmental footprint, including a unique 'GoGreen' module. This new system integrates the

AutoChief 600 with the vessel energy management system and navigation system enabling it to automatically regulate the main engine according to best practice and to optimise fuel consumption.

When activating the new 'GoGreen' function, the AutoChief 600 automatically determines the optimal rev/min command to be given to the main engine governor, at all times. The signal is based upon calculations made from the ship and engine characteristics, and the predicted weather situation. Available for most engine types, the 'GoGreen' software, automatically performs system checks.

As an alternative to the 'GoGreen' module, the AutoChief 600 constant power mode ensures that main engine power output stays constant, in order to support lower fuel consumption. The system, which is currently available for MAN B&W MC-C, ME-C and ME-B engines, allows rev/min to vary while keeping shaft power constant.

Kongsberg installed its first AutoChief system in 1967 and today, more than 10,000 systems have been delivered. The latest AutoChief technology forms the platform for diverse refit solutions for most low speed, 2-stroke engines and includes fuel actuators, engine safety systems, and governor systems.

By installing AutoChief 600, vessels with out-of-date systems can benefit from fully integrated digital technology, supporting the safe and efficient operation of main engines from all manufacturers, the company said.

EPIRBs and VDRS highlighted

Danelec Marine has published a White Paper describing the cyber security protective measures built into its Voyage Data Recorders (VDRs).

The White Paper, 'VDR Cyber Security,' is available for download at www.danelec-marine.com/news/white-paper-on-vdr-cyber-security.aspx.

"We recognise that cyber risk is a clear and present danger in today's shipping business environment," said Hans Ottosen, Danelec Marine CEO. "As a VDR manufacturer, we take seriously our responsibility to our customers. That's why we have put cyber security at the forefront in designing and building our products, with special attention to the remote access functionality in our VDR platform."

"Since the VDR is connected to many vital ship navigation and safety systems, such as radar, ECDIS and GPS, it can be a potential avenue for penetrating these connected system. For example, an attacker might try to damage or disrupt the ship's navigation systems by inserting malware through the VDR, or vice versa, try to send false information to the VDR by hacking into the connected systems."

Danelec is also now offering a comprehensive range of conversion kits to facilitate replacement of existing shipboard VDRs. The company has created packages to replace more than 30 different models of VDRs and Simplified VDRs (S-VDRs) across all major existing and legacy brands, making it easy and less costly for shipowners to upgrade to the new technology.

"Many ships are still equipped with VDRs and S-VDRs that were installed more than 10 years ago to meet the initial IMO carriage requirements," said Ottosen. "These systems are nearing or beyond their projected service life, and some are no longer in production or supported by their original manufacturers. We have developed a set of hardware, software and data interfaces that substantially reduce the time and cost of replacement by retaining the existing cable runs and mounting hardware."

McMurdo, part of Orolia Group, has introduced a new family of EPIRBs.

They are designed to accelerate the search and rescue process by combining multiple frequencies into a single EPIRB product.

The McMurdo SmartFind and Kannad SafePro EPIRBs will be the world's first distress beacons

that can support each of the four frequencies used in the search and rescue process - 406 MHz and 121.5 MHz for beacon transmission, GNSS for location positioning, and AIS for localised connectivity.

This multiple-frequency capability will ensure faster detection, superior positioning accuracy, greater signal reliability and, ultimately, accelerated rescue of people or vessels in distress.

"With this announcement, we continue our long tradition of market leadership and product innovation in the maritime industry," said

McMurdo UK's

Justine Heeley.

"From GMDSS shipsets to AIS man overboard devices to personal locator beacons, and now with these latest EPIRB advancements, we are dedicated to developing state-of-the-art technologies that keep people safe while navigating our world's waterways."

The majority of today's EPIRBs use 406 MHz and 121.5 MHz frequencies via satellite communication to provide location and positioning data to global search and rescue personnel who may be several hundred miles away.

The EPIRBs are also designed to be fully compatible with MEOSAR, the next generation of

the Cospas-Sarsat S&R satellite system that has helped to save over 40,000 lives since 1982. MEOSAR will increase the speed and accuracy of beacon signal detection and location with new on the ground network infrastructure and additional satellites.

McMurdo currently manufactures around 50% of the world's MEOSAR infrastructure and is also leading the design of additional MEOSAR-capable beacons under the European Union's Horizon 2020 Research and Innovation Program's HELIOS project.

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Ocean Signal has introduced the E101V float-free EPIRB with VDR memory capsule.

It has been designed according to the latest VDR performance standards as a solution for commercial vessels of 3,000+ gt.

Developed in collaboration with VDR specialist AMI Marine, the E101V is Cospas-Sarsat and MED certified and approved to IEC61097-2 as a float-free EPIRB with built-in memory capsule.

Enabling shipowners and operators to meet new mandates for VDRs as defined by IMO Resolution MSC.333(90), Ocean Signal's device can be easily integrated with a vessel's VDR.

The E101V features a dedicated float-free housing with improved hydrostatic release unit and automatic disconnection of the interface cable on release before 4 m depth, ensuring the stored data can be easily and quickly retrieved in the event of an accident or incident.

With 406 MHz Cospas-Sarsat satellite alerting and 121.5 MHz homing, it features an integral 66-channel GPS receiver, rather than the 22-channel GPS featured in other products, which ensures fast and accurate positioning, as the device is able to acquire the position from a cold start by seeking all the satellites simultaneously to determine which are in view.

At 224 mm x 110 mm (440 mm including antenna) and weighing just 985 g, the E101V is significantly smaller and lighter than other products on the market, due to the use of low current technology developed by Ocean Signal for its current EPIRBs. For maintenance, the compact design still allows easy accessibility without damaging the product, the company claimed. The release housing size is just 293 x 196 x 126 mm.

The Ocean Signal device will be available on an OEM basis to selected VDR manufacturers and suppliers for integration with their own systems.



Ocean Signal's float free EPIRB was developed with VDR specialist AMI Marine

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Tank monitoring devices

Hamburg-based *Hoppe Marine* now offers a cargo monitoring system for tankers.

The system continuously monitors the contents and temperatures of ballast, cargo, fuel oil, and other liquid tanks. In addition, the vessel's draught can be measured precisely by using Hoppe's draught measuring system.

A PLC unit HOMIP acts as the signal hub between all process components and control work stations or other centralised shipmanagement systems with serial Ethernet or RS 485 interfaces.

An integrated 6 inch touch screen display offers a clearly structured and easy interface for system configuration, parameter settings, and full back-up operation. The system setup is especially designed for decentralised installations. As a result of this vertical responsibility approach, the tank content data does not need to be subjected to any further processing, the company said.

All components are engineered and produced in-house. This allows on-going R&D activities for product improvements and system optimisation.

Key Features -

- Full responsibility for the tank content data.
- In-house design & engineering of all major components.
- Saves installation costs using intelligent

decentralised design or Bus-type sensors.

- Reliable and easy-to-handle sensors.
- Possibility of measuring range adjustment.
- Type approved control and measuring system.

Earlier this year, **SKF** introduced a quick to install device for easy oil and water separation in tanks.

Sludge oil is a term commonly used to describe the waste oil mainly derived from the process of purifying fuel oils and lubricating oils in order to ensure proper operation of ship's machinery. During the process, the separated water from the purifying process mixes with the waste oil in the sludge tank.

In operation, the oil in the tank flows into the buoy's lower compartment at a maximum rate of 6 cu m per hour. It is then either pumped out or flows out under gravity depending upon whether the drain is below or above the surface of the water. This separation at the source enhances environmental performance according to ISO 14001.

The resulting water left in the tank is much cleaner and easier to process in the bilge water separator, boosting its efficiency and reducing costs. Meanwhile, the free water content of the

separated oil is quite low, typically less than 5%. Consequently, it requires no further treatment and can be disposed of either in an on board incineration plant or ashore.

The system can be used at higher temperatures of up to 90 deg C and it is available in two sizes – the Turbulo Sludge Buoy and the Turbulo Sludge Buoy Mini – which can be specified depending on the available space in the tank.

Six months have passed since **Scanjet** acquired PSM Instrumentation.

Since then, the two companies have been working together to bring total intelligent tank management solutions to the maritime market.

The ITAMA (Intelligent Tank Management) concept of 'One port of call' has brought together design and manufacture of all sensors, mechanical components and central monitoring/control systems from one provider, PSM Scanjet, with optimum performance and support guaranteed.

Full details will be released to the market soon, Scanjet said.

At SMM, Scanjet made a number of new product launches, including the IGS System (following the acquisition of Feen IGS) and the new Scanjet radar product.

T



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Advantages of the new Panama Canal outlined

With the Panama Canal's new set of locks now open, shipping trades are affected since vessels up to about 180,000 dwt are now able to transit the newly expanded canal.

This will mean that not only vessels, which could not pass through the old locks will now be able to transit the Canal (eg Aframaxes and Suezmaxes), but also existing vessels formerly transiting with a reduced draft will now be able to take advantage of the 3.16 m additional draft allowance of the new locks.

Marine consultants and surveyors Alpha Marine (AMC) gave an example of the Panamax/LR1 types. The draft and carrying capacity difference is outlined in table 1.

This would result in around 16,100 tonnes of additional cargo, which a Panamax/LR1 would be able to carry by navigating through the new locks.

This benefit increases with ship size. Most Aframaxes and all Suezmaxes did not have the ability to transit the old locks, but they will now be able to transit



Panamax/LR1	Existing Locks	New Locks
Draft (TFW)	12.04 m	14.48 m (<15.20 m)
Draft (TFW) diff.	-	2.44 m
DWT	abt 57,480	73,580 full DWT

Source: Alpha Marine

tanks, reducing required staging, upgrading the SWL of existing fittings to avoid new ones, etc) and b) required under-deck reinforcements (for minimum added steel weight).

AMC explained that each project is typically split into the following three phases:

Table 1

the Panama Canal, albeit at less than summer draft in some cases.

AMC gave examples for Aframaxes and Suezmaxes able to take advantage of the new locks:

Looking at table 2, Aframaxes may now transit the Canal almost fully laden, whereas Suezmaxes may transit partially loaded with a dwt of around 130,000.

AMC has already prepared the necessary technical documentation required for compliance with the new Panama Canal requirements (ACP OP Notice to Shipping N-1-2016) for more than 300 vessels of all

types (more than 100 of which were tankers).

The experience gained through all these projects allows AMC to optimise the design in terms of a) number/location of additional fittings required (eg avoid new fittings over fuel

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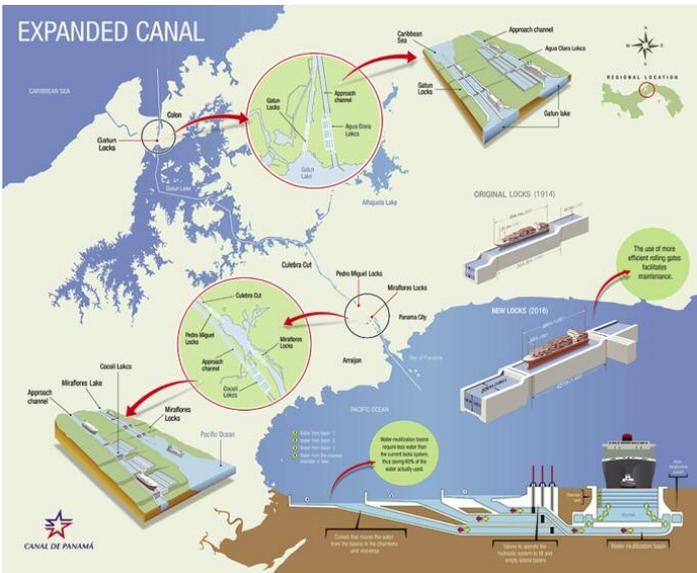
	Aframax	Suezmax
Draft (max-TFW)	15.46 m	17.81 m
Draft (Panama-TFW)	15.20 m	15.20 m
Draft diff.	0.26 m	2.61 m
DWT (max-TFW)	abt 118,000	abt 163,000
DWT (Panama-TFW)	abt 115,000	abt 134,000

Source: Alpha Marine

Table 2

- 1) Preparation of draft, updated Mooring Arrangement Plan in accordance with applicable requirements and submission to Panama Canal Authorities for approval.
This enables operators to have a clear view with regards to the extent (and associated budget) of the required modifications at an early stage.
- 2) Review/preparation of necessary drawings as per ACP N-1-2016 requirements for determining each vessels' compliance. To this effect, the pilot boarding facilities, pilot shelters, blue steering lights, navigational instruments locations, minimum laden/ballast drafts, etc are checked so that approval may be granted from ACP.
This does not apply to vessels already having transited the Panama Canal (old locks), eg Panamax vessels, since they already comply with the requirements.
- 3) Upon receipt of full approval from the ACP and after ordering the new required fittings, strength calculations as per applicable class requirements need to be prepared to determine the necessary under-deck reinforcements in way of new mooring/towing fittings, and preparation of relevant structural drawings for class approval.

Tanker Operator is indebted to Philip Tsiichlis, Naval Architect & Marine Engineer and Technical Director of AMC for providing this updated information.



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Oceanfile releases Version 7

Athens-based tanker vetting and inspection software specialist, Oceanfile, recently released a new version of the company's program.

Announcing the release, director David Savage quoted a tanker operator who said that while some of their people dealt with inspections effectively, others are too often associated with results that damage a company's reputation and business.

The undisclosed operator asked if Oceanfile could provide tools to highlight these shortcomings and identify where corrective actions were needed. The company knew where bad results were occurring, but searching for common cause,

specifics of incidents and application of corrective actions, wasn't so easy.

Oceanfile's V7 Business Intelligence (BI) analytics was developed to deal with queries such as this, Savage claimed. In this particular case, the operator used Oceanfile BI, discovered where and why problems were occurring and applied corrective actions.

Capt George Bogris, QA manager TMS Tankers, has been using Oceanfile since 2013. He said; "Oceanfile is at the heart of our quality and vetting management. We

know precisely where problems are occurring and what we need to fix them. Oceanfile's reports and graphs are of great value for our management reports and TMSA reviews.

"Day-to day management of vetting, inspections, observations and dealing with updating the officers' matrix have been greatly simplified using Oceanfile and reduced the workload of our QA department. Regular upgrades to the program respond to our suggestions and greatly support our quest for constant improvement," Capt Bogris said.

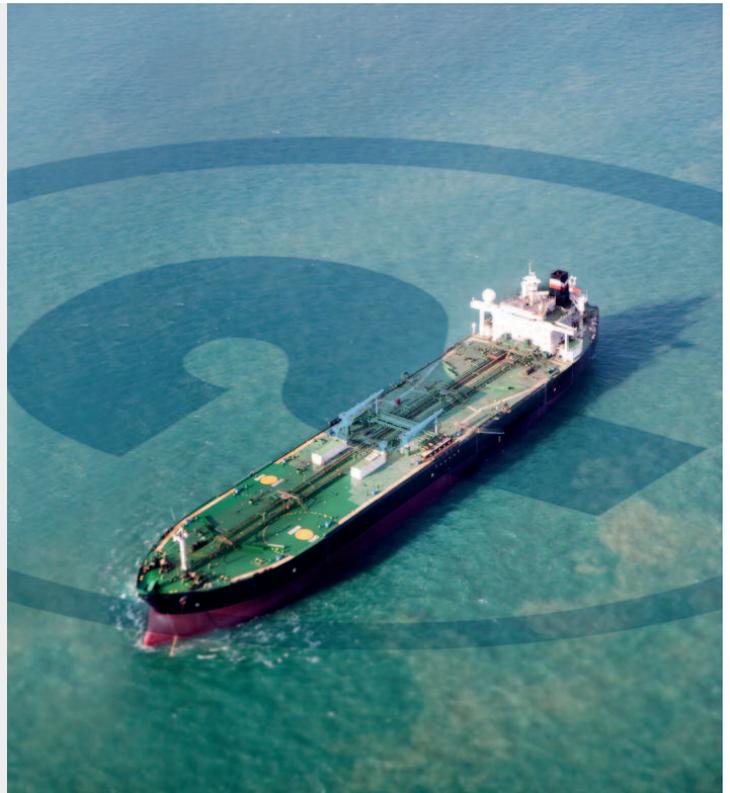
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*IMO Resolution MEPC.108(49) as amended by MEPC.240(65)



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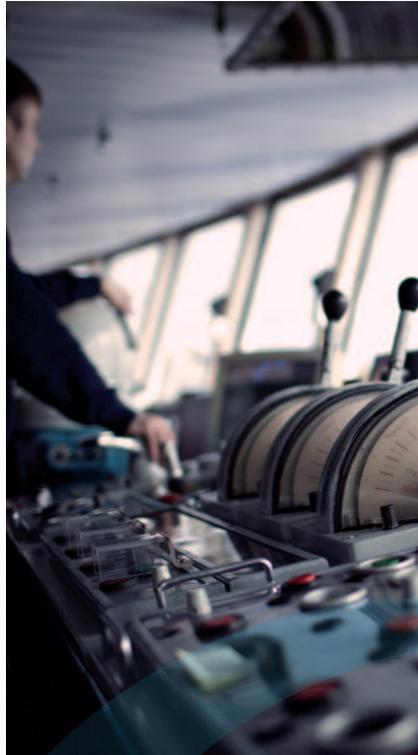
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