Digital Ship
www.thedigitalship.com
January / February 2008

INS training "inadequate" - NTSB

In a report into a heeling incident in 2006, which left almost 300 people injured, the US National Transportation Safety Board has cited "inadequate training" in the use of Integrated Navigation Systems as a significant contributing factor - and has recommended that the maritime industry take action

The US National Transportation Safety Board (NTSB) has issued the report of its investigation into the heeling of the Crown Princess cruise ship off the coast of Florida in 2006, and has pointed to a lack of training in the use of integrated navigation systems as a contributing factor to the accident, in which approximately 300 people were injured.

The NTSB report says that the captain's and staff captain's inappropriate inputs to the vessel's integrated navigation system while it was travelling at high speed in relatively shallow water, and the inadequate training of crew members in the use of integrated navigation systems, were major contributing causes to the incident.

On July 18, 2006, the cruise ship Crown Princess, which had been in service about a month, departed Port Canaveral, Florida, for Brooklyn, New York, its last port on a 10-day round trip voyage to the Caribbean. About an hour after departing, the vessel's automatic navigation system caused the ship's heading to fluctuate around its intended course, and began a turn to port.

NTSB has said that a lack of training for the captain and staff captain of the Crown Princess in the use of INS was a contributing factor to the accident

Alarmed by a perceived high rate of turn, the second officer, the senior watch officer on the bridge, attempted to take corrective action by disengaging the automatic steering mode of the vessel's integrated navigation system and taking manual control of the steering.

The second officer turned the wheel from port to starboard several times, which resulted in the ship heeling to a maximum angle of about 24 degrees to starboard, resulting in 14 serious and 284 minor injuries to passengers and crewmembers.

The vessel incurred no damage to its structure but sustained considerable damage to unsecured interior components, cabinets, and their contents.

Findings

The report adopted by the NTSB states that the Crown Princess was operating at nearly full speed when the second officer took the controls. Because of instabilities in the automatic steering system, the officer faced the problem of navigating a vessel that exhibited both increasing course deviations and high rates of turn.

As noted, the second officer took manual control of the steering and steered back and forth between port and starboard in increasingly wider turns. But, rather than remedying the problem, the second officer's actions aggravated the situation, resulting in a very large angle of heel.

The captain did return quickly to the bridge, and brought the vessel under control by centring the rudder and reducing speed, though too late to prevent the damage caused by the heeling.

The NTSB concluded that the incident occurred because the second officer initially turned the wheel to port, when he should have turned it to starboard to counteract the turn.

With particular regard to use of the integrated navigation system on the

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Digital Ship

Vol 8 No 5

Digital Ship Limited
213 Marsh Wall
London E14 9FJ, U.K.
www.thedigitalship.com

PUBLISHER
Stuart Fryer

EDITOR
Rob O'Dwyer: Tel: +44 (0)20 7510 4940
email: odwyer@thedigitalship.com

CONFERENCE PRODUCER / CONSULTING WRITER
Karl Jeffery: Tel: +44 (0)20 7510 4935
email: jeffery@thedigitalship.com

ADVERTISING
Ria Kontogeorgou: Tel: +44 (0)20 7510 4931
email: ria@thedigitalship.com

MARKETING
Rebecca Gee: Tel: +44 (0)20 7510 4946
email: gee@thedigitalship.com

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

EVENTS
Diana Leahy: Tel: +44 (0)20 7510 4939
email: leahy@thedigitalship.com

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

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March 11-12, 2008

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vessel bridge, NTSB noted that both the captain and staff captain had made errors by failing to recognise that the integrated navigation system could be unpredictable at high speed in shallow water, and that the rudder economy and rudder limit settings on the integrated navigation system were inappropriate for the vessel's speed and operating conditions.

NTSB concluded that these errors stemmed from inadequate training and lack of familiarity with the integrated navigation system, though it should be noted that NTSB did acknowledge the fact that the "mechanical condition" of the equipment was not in any question, and that the technology was operating as normal.

As a result of these findings, NTSB has issued a number of recommendations with respect to the training requirements for seafarers serving on vessels with integrated navigation systems.

It was suggested to the Coast Guard to propose to the IMO that: "in conjunction with the upcoming revision of the Seafarers' Training, Certification, and Watchkeeping requirements, it make training in integrated navigation systems and integrated bridge systems mandatory for watchkeepers on vessels equipped with such systems", and that IMO "mandate the recording on voyage data recorders of heel angles through the complete range of possible values."

NTSB also made a recommendation to integrated navigation system manufacturers SAM Electronics and Sperry Marine, who had manufactured the INS in use on the Crown Princess in this instance, that the companies should work with their customers to improve coordination of information.

The report suggests the manufacturers cooperate with vessel operators in developing "a system that provides you with critical information regarding errors or potential problems in the use of integrated navigation systems or integrated bridge systems and apply the lessons learned to system design and crew training."

It could be presumed that this recommendation would apply to all manufacturers of similar types of systems, in the interests of making potentially useful safety information as widespread as possible, and reduce the likelihood of similar incidents being repeated.

As the report notes: "The systematic collection of data on mishaps related to integrated navigation systems and integrated bridge systems will enhance the systems' design, procedures, and training."

The report also suggested that the Crown Princess accident demonstrated the need for "obtaining and archiving data on vessel angles of heel."

Statements

While Integrated Navigation Systems are no doubt a useful and potentially life-saving maritime technology, this incident does highlight the dangers of 'putting the cart before the horse', as it were, and installing systems before crews are adequately trained in their usage.

However effective a system may be in the hands of a properly qualified user, in a situation such as this one, where the training level was not sufficient, the technology may prove to be confusing, or even worse.

While the lack of INS training of the two officers was a contributing factor to this incident, and not a sole cause, NTSB is determined to eliminate the scope for such a failure of expertise in the future.

NTSB's Mark V. Rosenker noted that: "Had the crew been better trained in the equipment they were using, this accident may not have occurred, and implementing our recommendations is one way to help ensure this."

'Had the crew been better trained in the equipment they were using, this accident may not have occurred'
- Mark Rosenker, NTSB

Princess Cruises responded to the report with a statement of its own, and noted that many of the recommendations made by NTSB had already been adopted by the company following its own reviews of how such mistakes could be avoided in future.

"During the past year and a half since the incident, we have introduced many measures designed to keep a similar situation from occurring," the statement read.

"(This has included) enhanced training with an emphasis on integrated navigation systems, strengthened professional standards and oversight for our deck officers, improved bridge resource management and handover procedures, and increased bridge manning, including new professional advisors." DS

Thuraya satellite launch success

www.thuraya.com

The launch of the Thuraya-3 communications satellite from the Pacific Ocean, using a Zenit-3SL rocket, was successfully completed on January 15th, having been delayed a number of times at the end of November due to poor weather conditions.

The satellite was launched from a floating Odyssey platform in the mid-Pacific, at 11.49 GMT on 15 January, placing the 5,170 kg (11,380 lb) Thuraya-3 into a geosynchronous transfer orbit.

Managed by launch company Sea Launch, the floating platform was located on the equator at 154 degrees West, to take advantage of a principle of physics whereby a rocket launched from an equatorial position can carry a heavier payload into orbit than it could from elsewhere on the Earth's surface.

The Zenit-3SL craft lifted off immediately once the 44-minute launch window opened, with the Thuraya 3 satellite separating itself from the vehicle 98 minutes later. Sea Launch spokeswoman Paula Korn described the launch as "perfect."

Thuraya-3 is the third and latest geo-mobile satellite manufactured by Boeing for Thuraya. The first two satellites, Thuraya-1 and -2, launched in 2000 and 2003 respectively, were the largest commercial satellites ever launched at that time.

The successful completion of the project has marked the end of a difficult period for the communications provider in its attempts to add the new satellite to its network, with a number of previous attempts to launch the rocket having been aborted.

The most recent planned launch of Thuraya-3 was originally scheduled for November 13, 2007, before being cancelled. The launch was then expected to take place November 21, 2007, at 3.25 GMT, before the weather and unusually strong currents put paid to these plans.

Thuraya's CEO, Yousuf Al Sayed, indicated that the launch of this satellite will form an important part of the company's strategy going forward.

Mr Al Sayed also added that Thuraya has already completed all ground network preparations for Thuraya-3, and set up a commercial infrastructure with a number of partners in East Asia, with a view to a commercial launch early in 2008.

Once operational, the new satellite will double Thuraya's current coverage to include all Asia-Pacific countries, enabling it to offer its services in markets like China, Japan, Australia, Korea, Indonesia, Malaysia and the Philippines.

The Thuraya-3 satellite, launched January 15, will double Thuraya's current coverage

Globalstar has signed an agreement with Globaltouch West Africa Limited (GWAL) to offer satellite voice and data services to customers in Nigeria, parts of the coastal Atlantic and Gulf of Guinea maritime region, as well as other surrounding portions of Western Africa. GWAL is headquartered in Lagos, Nigeria, and the new satellite gateway ground station will be located in Kaduna, Nigeria. Globalstar will own 30 per cent of the new venture.

Zenitel has announced the appointment of Eugeen Beckers as its new Chief Executive Officer, starting 1 January 2008. Former CEO Erik Hoving is to stay on as a non executive director. Mr Beckers' has previously held positions at Telecom Malagasy, the BT Group, and Cegetel Entreprises in France.

Iridium Satellite has appointed John S. Brunette as the company's new chief legal and administrative officer. Mr Brunette replaces Michael Deutschman, who has retired. He was previously with Teleglobe Inc, a global voice and data services provider, where he served as CEO and executive vice president.

www.globalstar.com
www.zenitel.com
www.iridium.com

Great Lakes VSAT order for Radio Holland

www.radioholland.nl

Radio Holland has been awarded a multi-year contract to supply communication network services to a consortium of maritime shipping companies who are members of the Canadian Shipowners Association (CSA) and the Lake Carriers' Association (LCA).

The CSA and LCA member companies operate 131 Canadian-flagged and American-flagged ships providing bulk carrier shipping services on the Great Lakes, coastal and Artic waters of Canada.

The communication network services to be supplied will include Seatel VSAT equipment, as well as iDirect, Linksys and Cisco solutions. Each solution will be integrated with existing on-board systems and upgraded when necessary.

Site surveys are already underway, and Radio Holland expects that installations will begin in January.

Jack Haynie, president of Radio Holland USA, noted: "All installations will be done in Canada and the US and will be coordinated from our projects and management dept in Houston. All North American Radio Holland branches will be involved in the project from the start."

Radio Holland will partner with ITC Global, a corporate network and communications company, to provide a network custom-built to the requirements of the vessels in their designated areas.

Iridium appoints leader for NEXT development

www.iridium.com

Iridium Satellite has announced that Lee Demitry has joined the company as the executive vice president for Iridium NEXT, the company's next-generation satellite constellation program.

Mr Demitry will lead the creation, development and implementation of the NEXT program. He will be responsible for managing the transition to NEXT from the current constellation.

Iridium NEXT is a development program for the replacement and enhancing of the company's satellite services. It will give customers high bandwidth data as well as voice and short messaging services over an IP-based network.

During his 32-year career in aerospace and satellite technology, Mr Demitry spent 20 years in the U.S. Air Force and led some of the most complex satellite programs within the U.S. Government.

In his previous role as the vice president of engineering for GeoEye, the world's largest commercial satellite imagery company, he led the development, deployment and maintenance of high-resolution commercial imaging satellites.

Stratos and Vizada release FleetBroadband packages

www.stratosglobal.com
www.vizada.com

Inmarsat two largest distribution partners, Stratos and Vizada, have confirmed the commercial availability of their new maritime broadband satellite communications solutions based on the FleetBroadband service.

Stratos also announced it has begun a FleetBroadband field trial with its long-standing customer, the Royal Netherlands Navy (RNLN). Stratos says that this field trial establishes the RNLN as the first organisation to activate the FleetBroadband service.

The three-month field trial is being conducted onboard the RNLN Van Kinsbergen in Western European waters, including the Western Baltic.

"We believe the field trial of FleetBroadband from Stratos will provide the RNLN with an excellent opportunity to evaluate the benefits of this new high-performance service in a wide variety of deep-water conditions," said Lieutenant (RNLN) S.H. Veenstra, commanding officer of the Van Kinsbergen.

"High-speed connectivity has become vital in today's naval world. This enhanced communication will also help elevate the quality of education and training to new levels."

Both Stratos and Vizada will aim to compete mainly on the provision of value added services to supplement the high-speed connectivity of FleetBroadband.

Vizada will offer its Terralink interconnection solution, which provides secure links from vessels to the corporate network and also helps to optimise transmission speeds, as well as a fixed-to-mobile solution called Satellite Direct that enables shore personnel to inexpensively and rapidly contact vessels through a toll-free number.

Stratos' main value added offering is the Stratos Advantage service, which it says will provide users with cost and traffic control, firewall management, data optimisation, high security options, easy VPN access, messaging services and full IP range.

In addition to offering Stratos Advantage, Stratos says it will also work with other application partners to deliver broadband business solutions in other areas like voyage management, remote management, IT management and cargo management.

Thrane & Thrane receives FleetBroadband 250 approval

www.thrane.com

Thrane & Thrane has become the first manufacturer to supply terminals for both of the FleetBroadband 500 and 250 services.

The company has received Inmarsat Type Approval for its SAILOR 250 FleetBroadband terminal and expects to ship the first units before the end of January 2008.

Following the April 2007 launch and September 2007 market introduction of the SAILOR FleetBroadband products, Thrane & Thrane says it has experienced an "overwhelming interest" and has already received a number of orders for the terminals.

The first consignment of SAILOR 500 FleetBroadband was shipped on December 14th 2007, with some of these terminals having already been made fully operational at sea.

SAILOR 250 FleetBroadband offers data speeds up to 284 kbps with an antenna that is smaller than today's Fleet33 system, with a diameter less than 30 cm and weighing just 5 kg.

"The fantastic interest in SAILOR FleetBroadband makes us confident that these products will be very successful in the market, especially as more and more operators see the inherent benefits that FleetBroadband can bring to operation," said Casper Jensen, manager maritime global marketing for Thrane & Thrane.

MOL Tanker in training to combat piracy

www.mol.co.jp

Mitsui O.S.K. Lines reports that it has taken part in a joint government-private sector training programme, aimed at combating piracy and terrorism on the high seas, conducted with the Japan Coast Guard (JCG) and other organisations.

The training simulated an emergency situation, and focused mainly on telecommunications. It was designed to test the effectiveness of MOL's risk management structure, including communication channels with relevant parties.

The programme was conducted with the Japan Coast Guard (JCG) and other organisations and was held on the very large crude carrier (VLCC) Kaminesan which was under way in the South China Sea, on the morning of December 5.

Participants included the Kaminesan; the Japan Coast Guard, and patrol vessel Shikishima; the Japan Shipowners' Association; the Land, Infrastructure and Transportation of Ministry Maritime Bureau International Shipping Division; Mitsui O.S.K. Lines, Ltd.; and MOL Tankship Management Ltd.

The training scenario was based on the assumption that the Kaminesan was being trailed by a high-speed boat suspected of being a pirate vessel, while en route from Japan to the Middle East.

The Kaminesan transmitted ship security alert signals to report the occurrence of the sea jacking to its ship management company MOL Tankship Management Ltd. Aboard the vessel, they actually discharged water, bolted hatches shut, and took other emergency steps to prevent pirates from boarding the ship.

The ship management company that received the vessel's report, immediately reported to the MOL Safety Operation Supporting Centre. After that, MOL exchanged necessary information with the ship management company.

The Safety Operation Supporting Centre, which began operation at MOL headquarters on February 1, 2007, was established to respond accurately to events that may hinder a vessel's safe operation, for example from global terrorism or extreme weather conditions.

The JCG upon receiving the report from the ship management company, ordered the patrol vessel Shikishima, assigned to anti-piracy and counter-terrorism duty in the Southeast Asia area, to proceed immediately to the spot.

The Shikishima reported the situation to the JCG upon exchanging messages with the Kaminesan. The JCG reported the information from the Shikishima to relevant parties including the ship management company.

Inmarsat-backed Stratos takeover complete

www.inmarsat.com
www.stratosglobal.com

The takeover of Stratos Global Corp by CIP Canada Investment Inc has been completed, after the companies received final regulatory approval from the US Federal Communications Commission (FCC), giving CIP the go-ahead to proceed with its acquisition of the issued share capital of Stratos.

The acquisition had been awaiting final approval since Stratos shareholders had voted to accept CIP's bid for the company in June of 2007. The value of the completed deal, including the assumption of debt, is US$636 million, representing a cash purchase price of C$7.00 per share

Funding for the deal is partly being provided by Inmarsat Finance III Ltd, a wholly-owned subsidiary of Inmarsat, through the provision of a loan worth up to $275 million.

In return for the provision of these funds Inmarsat retains an option to then buy CIP Canada in April 2009, should it wish to do so, upon the expiry of its current distribution contract deals with Stratos and a number of other partners. This call option expires in December 2010.

Until the call option becomes exercisable, Robert M. Franklin, an independent Canadian resident trustee, will hold legal title to the Stratos shares and exercise sole voting control over Stratos.

"We are extremely pleased with the completion of the acquisition," said Charles Bissegger, Stratos' chairman of the board of directors.

"We believe the acquisition of Stratos by CIP Canada is in the best interest of our shareholders, customers, partners, and employees."

"This transaction will allow Stratos to remain as an independent company continuing to execute its strategy through April 2009, and will promote stability of our business in the post-April 2009 period," added James Parm, Stratos' President and Chief Executive Officer.

"We look forward to this next phase in Stratos' history, where we will remain focused on delivering advanced communications solutions to our customer and partner base."

IMO LRIT regulations come into force

www.imo.org

IMO has warned that new SOLAS regulations on long-range identification and tracking (LRIT) of ships have entered into force as of 1 January 2008, and that applicable governments and vessel operators will have a limited amount of time to prepare any necessary changes.

The new rules allow SOLAS contracting governments one year to set up and test the LRIT system, and allow the same amount of time to ship operators to start fitting the necessary equipment, or upgrade existing systems, so that their ships can transmit LRIT information.

IMO's latest briefing on the changes states that: "The regulation in SOLAS chapter V Safety of Navigation, introduces LRIT as a mandatory requirement for the following ships on international voyages: passenger ships, including high-speed craft; cargo ships, including high-speed craft, of 300 gross tonnage and upward; and mobile offshore drilling units."

"Ships constructed on or after 31 December 2008 must be fitted with a system to transmit automatically the identity of the ship, the position of the ship (latitude and longitude) and the date and time of the position provided."

"Ships constructed before 31 December 2008 and certified for operations in sea areas A1 and A2, or A1, A2 and A3, must be fitted with the equipment not later than the first survey of the radio installation after 31 December 2008."

"Ships constructed before 31 December 2008 certified for operations in sea areas Al, A2, A3 and A4, must comply not later than the first survey of the radio installation after 1 July 2009 (but must comply earlier, as above, if they operate within sea areas A2 and A3)."

The briefing notes that ships operating exclusively in sea area A1, and fitted with an automatic identification system (AIS), will be exempted from the requirement to transmit LRIT information.

The LRIT system is intended to be operational, with respect to the transmission of LRIT information by ships, from 30 December 2008. A full copy of the briefing (53/2007) is available on the IMO website, www.imo.org.

Seaband to offer tracking systems

www.seabandsat.com

VSAT satellite provider SeaBand Satellite Communications, based in Florida, has released new wireless tracking systems for the commercial shipping industry.

The new SeaBand ACT (Asset Container Tracking) system allows ship owners and operators with dry or refrigerated containers to provide real-time reports on their cargo from anywhere in the world. SeaBand ACT provides security information such as location, speed, opening of container doors, and weather conditions.

SeaBand also offers an MVM (Marine Vessel Monitoring) system, with data flow and GPS capabilities for tracking, alerting, and reporting to and from vessels anywhere in the world. The system employs redundant satellite, microwave, and RF technology to ensure it remains 'always-on'.

Shed some light on the challenge of managing your fleet

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ABS Nautical Systems LLC

www.abs-ns.com

Admibros to install Blue Ocean Wireless GSM

www.blueoceanwireless.com

Irish maritime GSM company Blue Ocean Wireless (BOW) is to provide mobile phone coverage for crews in the Admibros Shipmanagement fleet. Admibros will initially install BOW's GSM solution on 8 of their container and tanker vessels.

BOW says that it is making "significant progress" in rolling out its product, having signed up over 150 vessels for installation. The company hopes for this number to grow as negotiations with other shipping groups continue.

"We are delighted to announce Admibros as a customer," said Blue Ocean Wireless CEO, Robert Johnson. "We have a rapidly growing customer base and have made strong progress since our foundation less than one year ago."

Admibros Fleet Director, Chris Christofides, also commented: "The Blue Ocean Wireless service will allow our seafarers to enjoy the most innovative crew calling and SMS solution of the maritime market."

"The solution separates crew communication from ship's business calls and allows crew for the first time ever to receive incoming calls and SMS on to their mobiles. The solution also prepares us for the future since we will proceed with the Fleet Broadband upgrade."

Inmarsat to build Alphasat payload

www.inmarsat.com

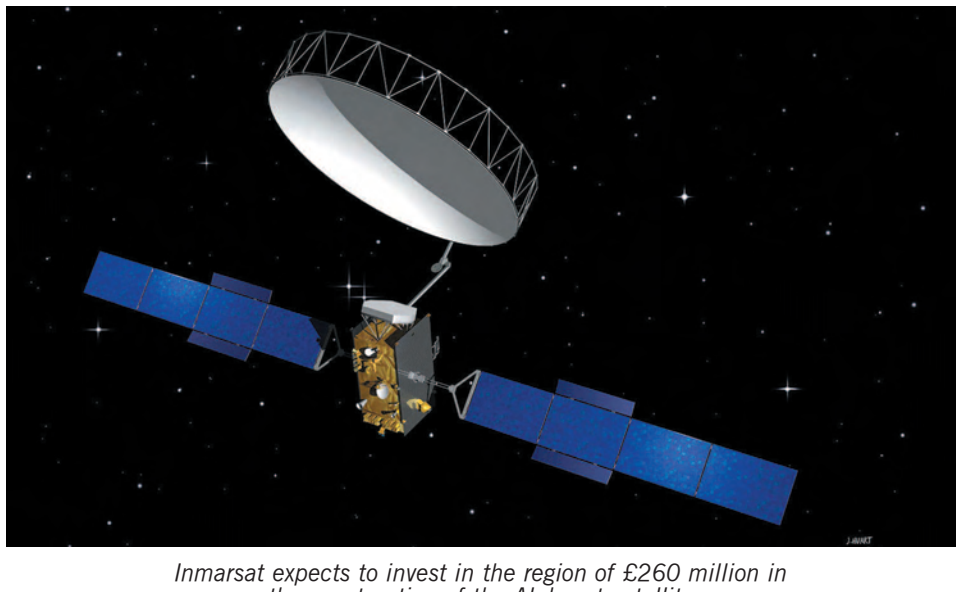
The Alphasat I-XL is part of a European Space Agency (ESA) initiative to develop a new spacecraft platform capable of carrying a large communications payload.

The satellite will feature a new generation of digital signal processor and a 12-metre aperture antenna reflector and is scheduled for completion in early 2012.

It will supplement the existing Inmarsat-4 satellites and provide additional capacity to the Broadband Global Area Network (BGAN) services over Europe, the Middle East and Africa. Inmarsat will be able to use a new allocation of L-Band radio spectrum across these regions.

Alphasat I-XL will have a launch mass of 6,000kg, an electrical power of 12kW and a design lifetime of 15 years. Inmarsat expects its investment will be in the region of £260 million (US$386 million), excluding insurance.

Much of the new satellite will be developed and built by Astrium in the UK. It is supported by ESA and the British National Space Centre (BNSC), with financial support for the public/private finance bid from the South East England Development Agency, the East of England Development Agency and the London Development Agency.



Inmarsat expects to invest in the region of £260 million in the construction of the Alphasat satellite

MCP signs mobile phone contract with Princess Cruise

www.mcp.com

Maritime Communications Partner AS (MCP), fully owned by Telenor ASA, has agreed a contract to install and operate mobile phone networks onboard all ships in Princess Cruises, Cunard Lines and P&O Cruises Australia's fleet.

The agreement covers 21 ships at the time of signing of the contract, representing a fleet with a total passenger capacity of approximately 45,000 people, as well as a crew of 20,000. The MCP service will allow all of those onboard to use their own mobile phones when at sea.

"This contract represents a definite breakthrough for MCP in the American cruise market," says Pål Bjørdal, CEO of MCP.

"We are proud to have been chosen to supply one of the most distinguished and demanding cruise operators in the market. The agreement with Princess Cruise Lines will be an excellent platform on which to further build our growth strategy."

Anthony Kaufman, senior vice president of commercial affairs at Princess Cruises, added: "This is a service that an increasing number of passengers expect to find onboard our ships."

"MCP has been very good to work with, particularly in respect of disabling the service in the certain public areas of the ship where we prefer cell phone service not to be present."

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KPIs and balanced scorecards - creating value from IT strategy

Maritime IT is often seen as a necessary evil, a cost to be suffered to keep the business up and running. But could the use of technology bring greater benefits if considered at a strategic level? *Digital Ship* spoke to maritime IT consultant Charis Nassis, about creating value through the use of IT

It is a generally accepted fact that the use of information technology is a necessity in the effective running of any business. In a modern business environment tools like e-mail and the internet are constantly in use, while mobile phones and PDA devices have allowed people to stay in touch with their work no matter where they may find themselves.

However, while IT may be a requirement rather than a choice at a basic level, the wider role of the IT department is something that can vary widely between different organisations, particularly in the maritime industry. The question remains as to whether IT is a cost to be endured, or a centre of value creation essential to the success of the organisation.

Maritime IT consultant Charis Nassis has recently concluded a research project focusing on IT governance in shipping, and he believes that the shipping industry could benefit from re-examining the contribution expected from technology workers in the industry.

"Many people see the IT department as the guys who take care of the PCs," he told us. "Is this true, or is it something more?"

"Sometimes the guys from the IT department have themselves to blame, because they mitigate their own role. They take the position as a task list - 'I'm here to support the ships, I'm here to open e-mail accounts, I'm here to do data backup', and so on."

Mr Nassis believes that IT managers sometimes sell themselves short in this regard, and should be using their knowledge to improve the way operations are carried out rather than just maintain the systems used to perform them.

"We need to go a little further if we are to look at how important the role of the IT department is," he said.

"If we follow the evolution of the chief information officer over time, we see that, starting from being a functional head, the CIO has become one of the business visionaries, and I think the IT departments have followed this path as well."

"It's gone from delivering on promises to aligning the IT with the business, to driving strategy in some cases."

"We need to start thinking about rephrasing what we do in the IT department," Mr Nassis continued. "Start thinking by objectives, about the outcome, about what is expected from the IT department."

'IT departments are expected to leverage technology for the benefit of the business, not just be there to support the ships' - Chris Nassis

"IT departments are expected to leverage technology for the benefit of the business, not just to be there and to support the ships. They are there to close the ship-shore gap, to use technology to bring company vessels closer. They are there to add value to the shipping business and provide cost effective solutions, not just cut costs."

As part of his research project, one of the first questions Mr Nassis had asked shipping IT managers was to describe what they felt was expected of them as an IT department in a maritime organisation.

"The outcomes that were said to be most important for shipping IT departments were low costs and growth, while asset utilisation and business flexibility was least important," Mr Nassis explained.

"I don't know if this is right or wrong, and maybe it would be different if we were asking the owners rather than the IT managers, but these were the results."

KPIs

Gaining a better of understanding of the contribution that information technology can make to a shipping company will require some effort, and an examination of the outcomes from the use of new systems, Mr Nassis told us. This is something that he believes has been improving in maritime organisations in recent times.

"Measurement is key, it's what brings clarity to what you're doing, whether it's better or worse," he said. "In the shipping industry it has been pushed by TMSA (Tanker Management Self Assessment), that brought in the concept of key performance indicators (KPI)."

"The key idea is to create a universe of KPIs, a system like the dials of an aeroplane cockpit that gives managers complex information at a glance."

Mr Nassis suggests that the creation of these KPIs needs to be carefully managed. What might make an excellent 'dashboard' for one company department may not provide the correct information in other areas, so tailoring the information to the requirements will be a key point in the process.

"If you ask an accounting person about KPIs he's going to give you several different financial ones, but these are not enough," he said.

"These days most of the value of companies is not related to tangible assets. The problem with intangible assets is that creating value is difficult, because they don't have a direct impact on the bottom line, it's usually a second, third or fourth order impact."

"For example, training and IT affects service quality. This then affects customer confidence, which affects customer retention. That affects your revenue. So it's not easy to attach the financial indicator back to the IT and the training directly, you need to follow the cause and effect to define how the value is created."

One method of KPI organisation that Mr Nassis thinks might be particularly effective for use in a maritime IT perspective is the balanced scorecard approach.

"The balanced scorecard is split into four broad areas: financial, customer, learning and growth, and internal business processes, and the company needs to decide what it needs to do in each of those areas to reach its objectives," he explained.

"For a scorecard purely for shipping IT, I would propose that the financial objectives would be to expand the scope and efficiency of shipping IT services, and to ensure that information and communication technology is delivered on time, within the budget and has visible benefits and value for the business."

"The KPIs for this could be the total number of vessels and shore users, the cost per vessel, improvements in cost efficiency and total cost of ownership, and the delivery of IT value per employee."

Mr Nassis continued: "Customer objectives could be to have internal and external customer satisfaction, with KPIs like level of service, satisfaction of existing users, improvements in the user experience, and the number of new ways and channels to deliver service to users."

"Business Process objectives could be to bridge the ship to shore gap, increase the availability and reliability of information technology, and develop innovative and effective solutions. KPIs might be availability of systems and services, developments on schedule and budget, throughput and response times, and the amount of errors and rework."

"Learning and Growth objectives could be the development of the skills of employees, and the creation of information systems and IT procedures that are necessary to meet future demands with respect to financial, customer and internal objectives. KPIs for this could be staff training in new technology and services, increases in the valued delivery per employee, and the availability of knowledge systems."

Tailored approach

While the balanced scorecard might provide a good framework from which to begin an examination of IT performance, Mr Nassis notes that the format and KPIs used in each case will have to be tailored to the operations and requirements of each particular company.

"Different companies have different targets, so of course we can't copy this for every shipping company IT department all over the world, but it's something to think about," he said.

"I was asked before about whether there was a standard way to measure performance in shipping company IT departments, and the balanced scorecard can work as a framework in this respect, but the problem is that you cannot, in isolation, make a balanced scorecard just for the IT department."

For the balanced scorecard to be a truly useful tool, an evaluation of the strategic importance of the IT department will be necessary, to determine how exactly this department is integrated with the rest of the company's organisational structure.

"IT performance is not only an IT issue, and measurement of this performance can't be applied on just one side of the company," said Mr Nassis.

"But we need to start from somewhere. The IT department is not self-guided, the targets and objectives must come as part of what the overall strategy of the company is."

"We can't just go out and say 'this is the solution for shipping IT', there is work that needs to be done in the company. We need to put these kind of systems into the centre of our strategy, not just the tasks."

Mr Nassis suggests that a greater appreciation of the value that the IT department can create for the company would be a very positive step in improving overall organisational efficiency.

"The IT manager is the person who leverages technology for the benefit of the business," he said. "They have to be trusted, and when they are they can begin to operate on the strategy side of things."

"Once IT is involved in the strategy, the department will have an opinion about the company that counts. IT will no longer just exist on the functional side, where you're just told what to do."

"But it takes the support of the company to help us to get there, and the trust of the company to say 'yes, this is a responsible person and we want him to be part of the strategy'."

Mr Nassis believes that this kind of support could be the starting point for a range of benefits to both the IT department and the shipping company alike. DS

TKS to install BASS systems

www.bassnet.no

Tanjung Kapal Services Sdn Bhd (TKS), a wholly-owned subsidiary of the Malaysian-based publicly listed company, Tanjung Offshore Berhad (TOB), has entered an agreement with Norwegian software provider BASS for the purchase of its BASSnet integrated ship management systems.

During the first half of 2008 the company will install crew management, payroll, planned maintenance and procurement systems onboard seven of TKS's fleet of offshore support vessels and land based offices.

Once the systems are installed, users on board and office workers on land will be able to collate crew information, monitor inventories and streamline payroll processes, and will be able to access data from a centralised database repository system.

"To succeed, TKS and BASS will work closely to configure and implement the system to improve our fleet management operations. Once installed, the system will enable TKS to establish best operating practices in line with BASS' vast global customer base," said Captain Hassan Ali, CEO of TKS.

"BASS is internationally recognised for its capability to deliver a comprehensive fleet management system and has supplied solutions to some of the industry's top global companies."

In addition to the software solutions, BASS says that it will also supply consulting and project services to TKS.

New tool for ABS-NS users

www.mgmtsysconsult.com

Management Systems Consulting has released a new tool called 'MSC Reporting', which aims to make reporting from ABS Nautical Systems' NS5 software package much simpler and accessible to mainstream users, allowing shipping companies to generate their own reports as they see fit.

The system features a simplified reporting database which can be used by shipping companies, where relevant tables and documents are handled programmatically prior to the presentation of the data to the user. The result is a simple database that can be used to answer a wide range of the questions which the marine operator might raise about the data that they have generated over time.

The reporting database covers areas such as purchasing, maintenance, crewing, and payroll. Additional data areas will be covered as the requirements present themselves.

Management Systems Consulting says that management of the application has been shown to be very efficient in tests.

Updating the reporting schedule is a speedy process - for example, the largest database used during testing was 5 Gigabytes, with which the full update took only eight minutes to complete. Most normal sized databases take less than a minute to completely refresh.

Tideworks system certified by US Customs

www.tideworks.com

Tideworks Technology has been certified as an authorised Sea Automated Manifest System (AMS) Service Centre by US Customs and Border Protection (US CBP).

The successful completion of the US CBP Automated Commercial System (ACS) testing phase qualifies Tideworks to begin offering its data processing services - known as ediPremier - to the maritime market.

The system can be used to connect customer data to the US CBP's AMS, allowing for the automation of manifests and amendments, in-bond notifications, conveyance updates, permit to transfer requests, transmission acceptance and/or rejection messages and bill of landing status notifications.

Using a unique bill of lading number, manifest data can be transmitted electronically for all cargo destined for the United States prior to vessel arrival. This allows customs an opportunity to review the submitted documentation and determine, in advance, whether the merchandise merits examination or whether to release it immediately upon arrival.

The carrier, upon receiving a provisional release from customs, is able to make decisions on staging cargo, and the importer can arrange for examination, release and further distribution of the merchandise. All of this can be accomplished before the merchandise actually arrives.

"We are very pleased with the function and capabilities of Tideworks' electronic data processing services," said Hilda Torres, customer service manager, Port of Miami Terminal Operating Company (POMTOC).

"Tideworks' EDI (electronic data interchange) services help POMTOC to exchange data seamlessly with its customers and with customs, which in turn allows us to keep cargo moving safely and efficiently."

Sea AMS is available to carriers, secondary notify parties, port authorities and service centres.

Jahre-Wallem to install Teomaki system

www.teomaki.com

Teomaki AS has won a contract to supply its Ship Management System to Jahre-Wallem AS in Sandefjord, Norway.

The contract includes the installation and commissioning of their fleet with the Teomaki SM application. Teomaki will deliver the software and convert the existing systems, while also providing training and general consultancy for Jahre-Wallem AS.

"Our aim is to use the Teomaki SM system as a true management administration program which will streamline the flow of information on spare parts and maintenance between the ships and various office departments," said Odd R Eidem of Jahre-Wallem. Jahre-Wallem AS, established in 1989, currently provides management for 18 vessels, including container vessels, ro-ro carriers and open hatch bulk carriers.

Maritime website MarineNet will now represent ShipServ in the Japanese market

ShipServ and **MarineNet**, a Japanese marine website, have announced a partnership agreement to jointly bring ShipServ's e-commerce solutions to the Japanese market. Under the terms of the agreement, MarineNet will become the exclusive agent in Japan for marketing and sales of ShipServ's solutions to the Japanese market.

SpecTec has completed the delivery of software and databases to Korkyra Shipping Ltd. The contract included the delivery of AMOS Maintenance and Purchasing to Korkyra Head Office in Korcula (including integration of new databases with the office database), the provision of AMOS software and databases for two ships, *Startramp* and *Supertramp*, and an upgrade to the latest version of AMOS Maintenance & Purchase (M&P) on another two ships, *Lady Korcula* and *Lady Racisce.*

Applied Weather Technology (AWT), a supplier of weather routing services and software for ships, has opened a new facility in Hopewell Junction, one hour north of New York City. The 2,000 square-foot building will house nine staff members, provide all weather routing services - including AWT's BonVoyage onboard software - and act as a complete backup to the Sunnyvale, California headquarters.

The new AWT offices in Hopewell Junction

www.spectec.net
www.shipserv.com
www.marine-net.com
www.appliedweather.com

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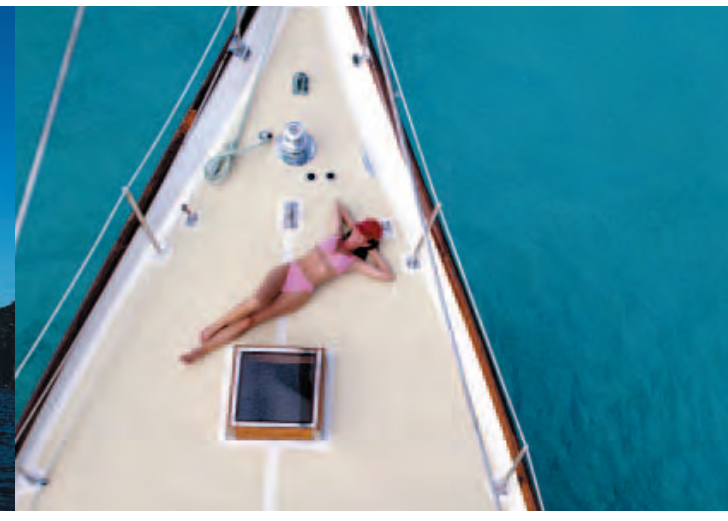

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EMSA takes delivery of KR system

www.krs.co.kr

The European Maritime Safety Agency (EMSA) has taken delivery of the Rulecheck system developed by the Korean Register (KR), following a ceremony in Daejeon, South Korea.

Based on KR's KR-CON system, Rulecheck was created by KR at the behest of EMSA, and brings together a complete list of the rules and procedures required by port state control officers (PSCOs) in the Paris MOU region.

Checklists can be created to provide full details for initial as well as for more detailed or expanded inspections, while the system also enables inspectors to more easily follow the complex elements of EU and international legislation.

"Rulecheck will, in my view, improve the quality and consistency of port state inspections across the Paris MOU region," said Willem de Ruiter, executive director of the EMSA.

"I offer my sincere appreciation to the Korean Register for the tremendous work they have done in interpreting the conventions and creating this system for us."

KR Chairman and CEO, Oh Kong-Gyun added: "Transferring knowledge and skills from KR-CON to the Rulecheck system has been central to the success of this project. I am delighted that EMSA selected KR to lead this project and am very pleased to be able to deliver a fully operational system to Mr de Ruiter."

The Rulecheck project spanned a total of 14 months, and will soon be made available to all Paris MOU inspectors on CD-ROM and online.

NCL online healthcare pilot

www.us-hsi.com

Health Systems International, a provider of healthcare solutions for the maritime industry, has recently completed a pilot project with Norwegian Cruise Lines testing an enhanced online appointment solution to help streamline health care for crew members once the ship reaches port.

The system allows the ship medical officer to make medical appointments from the vessel via the internet, once they have determined a need for additional care to be delivered on shore. HSI is automatically notified and appointment scheduling begins.

As appointments are scheduled, data is submitted to the vessel through the same internet interface notifying them of the time, date and location of the appointment. Immediate notifications of changes are submitted in real time after updates are made.

"Completing this pilot with Norwegian Cruise Lines for online appointments was the first step in redirecting focus to lowering the cost of care," said Althea Rollins, HSI, "because we can ensure the patients are being scheduled with quality providers, pre-contracted with HSI to accept discounts."

"We match the patient's needs with an appropriate physician in the area where the ship will port next. The crew members receive quality care through an organised process and the ship owner pays much less for the visit."

Dan Farkas, vice president and assistant general counsel NCL (Bahamas), commented: "We are pleased with the results of the online appointment process and technology. This allows our cost control partner, HSI, to not only garner the best price for medical care but also ensures are members are taken care of in quality settings that meet their specific health needs."

Mr Farkas also noted that NCL is now looking forward to rolling the process out on a wider scale across the organisation.

SpecTec signs training agreement

www.spectec.net

SpecTec has signed a cooperation agreement for the establishment of training courses in AMOS at the Magsaysay Maritime Training Centre in Manila.

The agreement was signed on December 12, and Magsaysay is now a fully accredited and certified AMOS training provider.

"Magsaysay training centre is an impressive facility, used by many SpecTec customers," said SpecTec CEO, Giampiero Soncini.

"They provide training not only for deck and engine seamen, but also for hotel stewards and hostesses. Considering that AMOS is installed on nearly 80 per cent of the passenger vessels worldwide, the cooperation with Magsaysay is an additional advantage."

12,000 cadets are trained at Magsaysay each year, which also caters for STCW training of officers and senior seamen.

In addition to the training centre in Manila, Magsaysay runs the Magsaysay Institute of Shipping (MIS), close to Manila, established by shipping companies Mitsui O.S.K. Lines, Fairmont Shipping HK Ltd and Magsaysay Maritime Corporation.

Marlon Rono, Chief Operating Officer of Magaysay Maritime Training Centre, and Giampiero Soncini, CEO, SpecTec, sign the training agreement in Manila

Seohae completes MTS integration

www.mtshub.com
www.seohae-ms.com

Seohae Sales & Services, the after sales and service group of Seohae Marine System, has completed its SupplierLink integration to the Marine Transaction Services (MTS) e-commerce platform.

MTS says that this makes Seohae "one of the few suppliers world wide with a fully integrated e-business solution." Seohae is using the Dynamic Ship Supplier sales order management system for marine suppliers by ShipCentric, with the MTS purchasing system integrated directly into into this solution. As such, Seohae will receive and issue e-business transactions directly into their own system.

Peter Peltenburg, head of sales and marketing at Seohae, said: "We really look forward to start receiving and issuing transactions over the integration and to be able to improve the process time and quality in our response to the customers."

MTS has also redesigned its website, moving to what it hopes is a more user - friendly layout for customers and suppliers. The new website can be found at www.mtshub.com.

MSC completes OSI integration

www.mgmtsysconsult.com

Management Systems Consulting LLC (MSC) reports that it has completed the design, development, and integration of an accounts payable interface from its ABS NS5 operational software to its Solomon financial system for Ocean Shipholdings Inc (OSI).

This development makes OSI the first MARAD (US Maritime Administration) ship manager to have the interface fully integrated and operating in production.

This interface allows OSI to streamline its business process in procuring and accounting for the items that they use to operate their vessels by completely integrating the two systems.

"The interface greatly reduces the workload of the both the procurement and accounting staff, allowing us to concentrate on the efficient operation of the vessels" says John James, vice president, treasurer and controller of OSI.

"The interface is designed to evolve with OSI's business rules, which are configurable in the interface, as well as satisfy all requirements of the auditors when integrating disparate systems" added Michael Johnson, principal, MSC.

One addition to the interface that MSC sees as particularly useful is a daily report which isolates potential data problems in the operational software, before it has any detrimental effect on the financial software.

"These 'pre-checks' allow for OSI to better manage their process and invoke corrective actions in a timely manner," says Mr Johnson.

BASSnet gets class certification

www.bassnet.no

Software provider BASS has announced that its BASSnet software package has now been certified by classification societies Lloyd's Register of Shipping, Bureau Veritas, Germanisher Lloyd , Det Norske Veritas (DNV), and Nippon Kaiji Kyokai (ClassNK).

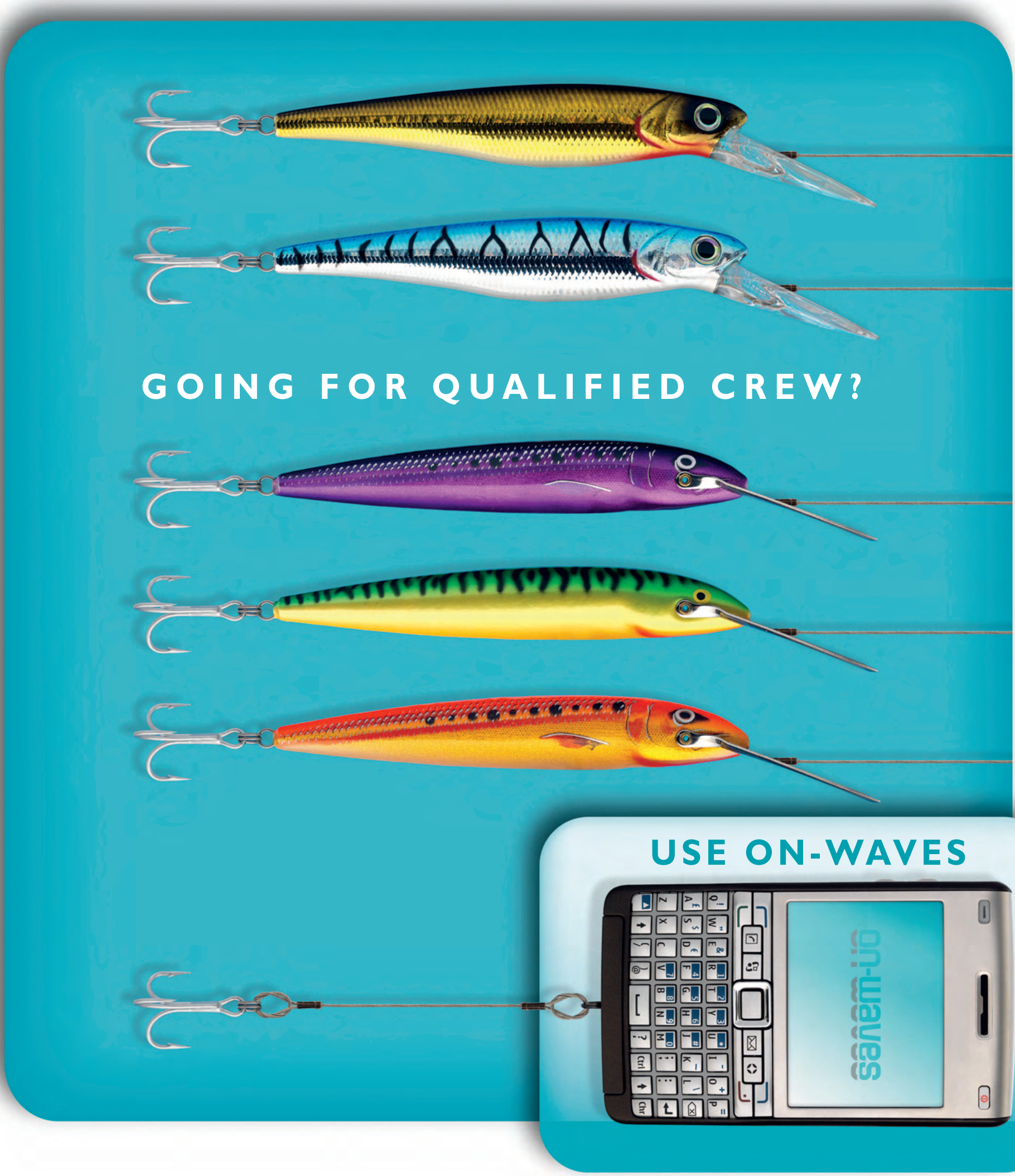
BASSnet was first certified by DNV in 2004 while the five other class certifications took place during 2007. The company notes that the American Bureau of Shipping (ABS) does not provide such a certification scheme for software, although their verification of ship maintenance and surveys follow the IACS standards.

According to Haakon Dalan, general manager, product management at BASS, ship owners and managers can achieve significant cost savings with class approved software.

Some class societies offer 15 per cent discounts on the total machinery fee, provided such software is used and satisfactory maintenance schedules are complied with, and additional savings can be obtained from the survey arrangement, he said.

"For example, no surveyor is required onboard for crediting of machinery components between annual surveys and you only pay for every component once during the Class period - even if the component is credited by the Class several times," Mr Dalan added.

Developed on the Microsoft.NET technology, BASS says that the BASSnet system is now in use on more than 1,000 ships worldwide.



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Training the Playstation generation

With the continuing issue of crew shortages a very real problem in the maritime industry, seafarers in the modern environment are required to perform more tasks with less time for training and learning. Can simulation and computer games provide a solution to the skills shortage? *Digital Ship* spoke to Apostolos Belokas, IBS

Established in 1998, Greek company International Business Solutions (IBS) has been developing computer based training programs (CBT) since 1999, and been providing training courses to the maritime industry since 2000.

The company has succeeded in signing approximately 420 clients to over 2,000 CBT installations so far, with a system which has been in constant development since IBS began operations. The latest versions have the look of some of the most recent computer games, where users can take control of an onscreen avatar and perform functions just as they would onboard a vessel.

It is a technology that Apostolos Belokas, managing director of IBS, hopes will be able to help shipping companies improve the level of training among their seafarers, without having to dig too much deeper for further resources.

"In the industry today we have financial pressures, concepts that 'every dollar counts'," he told us. "With this, there is poor safety motivation today in the market, and a substandard safety culture."

"We have increased operational complexity, but we also have a shortage of seafarers and a problem with the amount of time in rank. The key concept is that training is not an option today, it should be mandatory. The training challenge is to deliver competent staff at minimum cost."

Competence is a topic that Mr Belokas feels is not very well understood in modern organisations. The ability to answer a number of examination questions may be a good indicator of a certain level of knowledge about a subject, but true 'competence' for a particular job will have to incorporate a number of other traits.

"People can be like icebergs," he told us. "We have maybe 20 per cent available, good information about a person, about their education, their experience, but it doesn't say a lot about things like how this person thinks or behaves, his occupational interests, or his job fit. These we simply don't know, the 80 per cent below the surface."

The level of competence will be influenced by the match between the circumstances of the task and the person performing it, rather than just an analysis of previous skills and experiences.

"There are some different definitions of competence, it could be a combination of knowledge, skills and behaviour, or just the ability to perform a particular job in compliance with performance standards," Mr Belokas explained.

"There have to be performance standards, you can't say to a person 'you have to do this' and just expect them to perform, you should be able to identify standards and identify the job fit with the person."

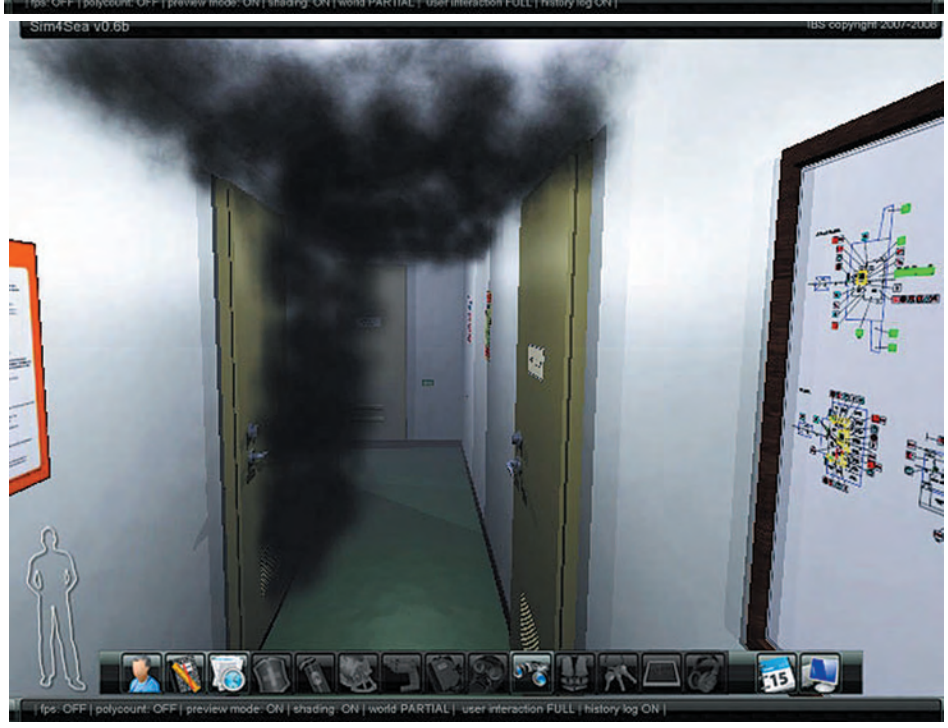
"Performance is a product of skills and motivation, it's not just a matter of skills. No matter how skilled you are you won't necessarily perform well."

Adult Learning

An understanding of people and the way that they learn needs to be fundamental to any training programme. Mr Belokas argues that there are many different stages of learning for any individual person, and that these need to be managed to provide the necessary environment for trainees to build competence.

"Let's use the simple example of someone learning to drive," he said. "At the beginning we don't know how to drive a car, but also we are unaware exactly what we don't know - this is unconscious incompetence."

"As we progress we learn to know and recognise what are the things that we can't



Trainees can explore a virtual ship and deal with onboard emergencies in the simulated game environment

do, which is conscious incompetence. We start to work on that, and begin driving."

"Then we move to a third stage of unconscious competence. We are able to drive, but we need to put some effort into doing it, something like when we just pass the driving test."

To move from not being able to drive to passing the driving test may seem like the natural conclusion to a driver's training programme, but Mr Belokas believes that more attention is required if the person is to remain truly competent.

"As we move from unconscious competence to the conscious competence stage everything becomes easier," he said. "This is when the driver does not remember the actual 'driving' when they're going to work in the morning."

"But that's not it. There's a meta-conscious competence stage of learning, where competence drops down because the person is not focusing on the task and is not necessarily doing it correctly. Even a very experienced driver can be involved in an accident."

"Meta-conscious competence is very important to identify and manage. In a sense this creates two types of competence periods, pre-competence and meta-competence."

These different learning stages, essentially the 'before and after' of acquiring a new skill, need to be handled in very different ways, according to Mr Belokas, with an approach that is focused on the needs of the trainee at their own learning stage.

"For dealing with pre-competence, like when a seafarer is leading up to their SCTW certificate, it's a matter of basic training, and there are a lot of methods - classroom, face-to-face, on the job training, books, DVDs," he said. "Things like that will work at that stage."

"After that, when they have the SCTW certification and are in the meta-competence period, these won't work so well. You have to start providing feedback to make sure that the person remains vigilant, you have to have interactive feedback within his daily job environment."

"The critical task is how we manage this meta-competence," Mr Belokas continued. "In my view, one way to do this is through highly interactive CBT and also simulation."

"We must understand this adult learning concept. Think of the driver with a licence, if they cause an accident, do you think they know the rules of the road? They do, but they still have accidents."

"We have to move from learning and training to performing. There are two main parts to this, the skills and the motivation. You develop the skills by training and learning how to do things better, but after that you need the motivation to perform better on a daily basis. What's important is what the person does on their own shift after all of the training has been delivered."

"Managing competence requires a commitment from the organisation to continuous improvement. I don't know if there are many companies that can say that they manage the competence of their people like that."

Live the game

The simulation concept that IBS has developed is very similar to that of a computer game in its appearance and methods of control.

You select the ship, whether it be a bulk

carrier, oil tanker, or anything else available in your database. You select your role, perhaps as a master or deck officer, and then you select the scenario you wish to train in. This could be an abandon ship, or a specific situation for a particular vessel such as a fire in the galley or on a certain deck.

While the simulation operates in a way that is somewhat similar to a game, with tasks and missions that have to be completed, the user is free to walk around the ship and use equipment that is not related to that particular 'game', to increase the level of realism and allow trainees to make the wrong move as well as the right one.

"You develop the skills by training and learning how to do things better, but after that you need the motivation to perform better on a daily basis."

Apostolos Belokas, managing director of IBS

"You name it, you can do it," Mr Belokas said. "Once you familiarise yourself with the features of the simulator gaming environment you have to play your role through on the ship in that situation."

"You can use a PC and a keyboard, you don't even need a joystick or anything like that. If you want a joystick you can add one, of course, but you don't need one."

"You have to approach emergencies like in real life," Mr Belokas continued.

"In real life emergencies you have collisions, power failures, things like this all happening at the same time. There are injuries, maybe an explosion if you are a tanker - how do you manage with all that? How many vessels are conducting real-life drills like this?"

"At the end of the simulation, and this is probably the most important part, there is a debriefing with a log of the actions you have done, and those you haven't done and were supposed to do. There's an assessment of the seafarer that has done the specific tasks."

"You are able to walk around within the virtual environment, that's very important to be able to do that," said Mr Belokas. "You can interact with virtual officers, and you can operate and test the virtual equipment onboard before going to complete a mission, or task or operation. You name it, you can do it."

"There is a library of predefined scenarios to select from, contingencies, operations and so on, but every company, on an individual level can develop their own scenarios and ask the seafarers to carry these out successfully."

"It also has realistic sea and weather conditions, and these conditions can be changed to make the sea rougher, change the lighting, you can change almost everything."

Mr Belokas sees a number of benefits of these simulation training methods that maritime organisations could take advantage of, with the most obvious being the lower costs involved with having machines take the place of human instructors. However, the ability to constantly test oneself, and to be provided with feedback, can also help to ward off a decrease in competence for certified seafarers.

"There's a low knowledge acquisition cost, and a reduced cost of using live, expensive equipment, of course," he said. "There are certainly financial benefits, but this is also a high quality training concept."

"You can easily identify and minimise the risk of accidents which could cause loss of life in real life stress situations. You can shorten the training programmes. There's a financial gain, but it's these types of benefits that are most important."

"Immediate trainee feedback is essential for effective management of the so-called 'meta-competence' learning period," he continued.

"It's important to remember that this learning stage needs sophisticated tools, as you need to identify the problem, find solutions, implement solutions, then find what is not working and improve again."

"Root cause analysis of problems can help, but the problem with human error is that we don't understand the nature of human error. As I said, people are like icebergs, you can't know all about them, about their job fit, whether they would leave tomorrow if someone offered them one dollar more."

Safety Culture

Mr Belokas believes that this sort of training programme should be just a small part of an overall safety culture within an organisation, where the company is constantly examining and improving its internal environment to ensure that all employees are as safe as possible, while also themselves working towards the safety of others.

"The first use of the term safety culture was after the atomic disaster at Chernobyl, which they used to describe the set of values, beliefs, attitudes and behaviours towards safety at the company," he told us.

'The role play simulation engages and involves the seafarer to understand the impact of their decisions'
- Apostolos Belokas, IBS

"There are three stages - dependent culture, independent culture, and interdependent culture."

"At the dependent stage the management is committed, but the employees are just implementing the management's decisions, 'just following orders'. At the independent stage there is a more personal commitment, where people feel 'I have to look after myself'. At that point they do implement decisions taken by management, but in the context of looking after themselves."

"The best stage is to have an interdependent culture, where we have team commitment, and people want to look after their team. Teamwork is the most important thing to introduce in a safety culture."

Mr Belokas feels that the idea of introducing teamwork in a simulated environment, where the actions of groups of people will determine the outcome rather than just a single person answering a group of questions, will be hugely beneficial in quietly building this team-focused reaction to an emergency situation.

"The thing about this is that these simulators are not just simulating the hardware, like you can have with a Transas simulator or a Kongsberg simulator, simulating how the ship will work," he said.

"It's not like a training DVD, with these you have to look after yourself, you know you just need to give the correct answers."

"The point of the role play simulation is that it engages and involves the seafarer, to understand the impact of their decisions, of their actions, and of teamwork."

Mr Belokas believes that engagement with the seafarer through teamwork and interaction with their environment is the key to making this training a success, and constantly improving competence.

With reference to the words of Confucius as long ago as 450 BC, he notes: "Tell me and I will forget, show me and I may remember, involve me and I will understand". Mr Belokas is hoping that this philosophy will become a byword in maritime training.

Licences for the IBS CBT system cost approximately EUR 750 per annum. DS

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Increase the value of your IT - improving usability

While shipping IT managers and other figures in the maritime industry can become excited at the prospective of an innovative new technology with a variety of new functions, it is the seafarers on their vessels that will be most influential in deciding whether or not a new system creates value for the organisation. Tasos Makris, Gourdomichalis Maritime, and Jonathan Earthy, Lloyd's Register, discuss the importance of IT usability

The issue of IT usability has been quietly but determinedly making its way onto the agenda in recent discussions about the future of maritime technology.

While the subject of cost is still, more often than not, the first item to be raised in conversation, modern business thinking is re-aligning the perception of the through-life cost concept, to urge organisations to become more focused on getting value for money, rather than just comparing the totals at the bottom of an invoice.

When value becomes an issue, usability takes on a whole new level of importance - after all, while the range of options and functions may be impressive, there's still no point in buying the latest iPod or iPhone if you are not able to turn the thing on.

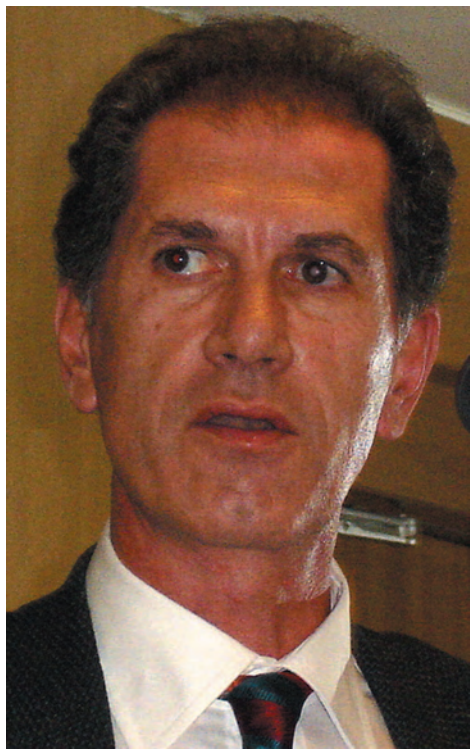
If value is gauged by improvements in performance, then surely usability is an important component in ensuring this. Furthermore, for applications where correct and timely use of complex systems is necessary for the safety of the ship, usability is paramount.

Tasos Makris, IT manager at Gourdomichalis Maritime, is among those who have become increasingly aware of the importance of usability. Having begun to investigate the topic and the science behind it, Mr Makris was amazed at the amount of research that has already been done on the subject.

"Usability is a multi-disciplinary approach," he told us. "Its roots are in ergonomics, but it has taken contributions from fields like psychology, sociology and design. The list is very big."

"Talking about the user's experience in usability, this is something that was new for me after reading about the subject."

In the course of his research, Mr Makris came upon some basic influential components that he believes could be a useful starting point in any assessment of a system's usability.



'It pained me to hear of (one shipping company) that had abandoned their software in favour of Excel sheets'
- Tasos Makris, Gourdomichalis Maritime

"There are some basic factors that can define a software's usability," he said.

"How much time it takes to complete a task, for example, this is something we can measure. How much training is needed, a few hours or a few days. Whether the product motivates people to use it - sometimes this is not important, but it's becoming more so nowadays."

"Usability is a combination of factors that affect the user's experience. It includes effectiveness: a measure of how well a user can perform his job accurately and completely; efficiency: a measure of how quickly a user can perform work, taking into account the resources expended to accomplish the task; and satisfaction: the degree to which users like the product - a subjective response, in terms of ease of use, frustration, and usefulness."

The most relevant combination of these factors will depend on the users and the organisation to which the technology is to be applied.

"On board a vessel, effectiveness and efficiency will be very important. Satisfaction may not be today, but I think it will be in the next few years," Mr Makris said.

"But two more factors come into play on board the vessel. First, the software must be error tolerant - very, very tolerant. And it must be easy to learn, due to insufficient training time available, lack of a help desk (or a costly help desk), and cultural differences."

Applying these usability factors to the particularly isolated environment of the maritime industry is essential in this situation, to create a system that is usable on a ship rather than at a desk on shore.

Prevention and cure

Mr Makris says that his research also helped him to understand the importance of assessing usability at the design stage, and the beneficial knock-on effects that this can create.

"There was a particular sentence I read by a Prof Landauer[1] that made sense to me," he told us.

"It said: 'The average UI (user interface) has some 40 flaws. Correcting the easiest 20 of these yields an average improvement in usability of 50 per cent. The big gain, however, occurs when usability is taken into account from the beginning (i.e. from the design stage). (Through changes in the design concept) this can yield efficiency improvements of over 700 per cent'."

"I think about it like this - if you put a plank over a hole outside your doorstep you make a big improvement in your everyday life, and reduce the possibility of breaking your leg when you cross the hole ten times every day. However, if there's no hole in the beginning, then there will never be a problem at all."

While, in theory, this might sound like a perfect solution, in reality it can be very difficult to assess usability in software when involved in the procurement phase. Often that information will emerge some time later, when it is too late and investment has been made.

"In this industry we do not really know how to compare products, or to plan for or measure usability costs," Mr Makris said. "As dependence on off-the-shelf software and the web increases, so will the impact of usability problems and costs."

"One case that I know of, from a large shipping company, it pained me to hear that they had abandoned their spare parts software in favour of Excel sheets. They'd found their new software slower than some old DOS solutions, and had even gone back to doing some things manually."

"What forces a company to abandon a software tool? First, it will be loss of productivity, and this can be understood immediately. Second might be a slow reaction from the developer."

Mr Makris suggested that software vendors do not pay great heed to isolated requests for usability improvements, as development on an individual, case-by-

case basis would be costly and difficult.

"In our experience developers react quickly to our requests for bug corrections, react slowly to our requests for more functions, react very slowly to our requests to modify features, and almost never react to requests for graphic design or better user interfaces. This is considered a luxury," he said.

"Software companies want users to have the vision of an eagle, the memory of an elephant, the stamina of a camel, and the dexterity of a monkey. It's time for a change. Functional requirements used to rule our attention, but functionality is not as much of an issue any more."

Ask and receive

Mr Makris believes that ship operators need to give careful consideration to what kind of system characteristics might be required to improve usability within their own particular organisations.

"The experience of the shipping company I mentioned before (abandoning its software) made me think how much we are in need of usability requirements," he told us.

"If you actually want usability built into your programs you should know how to ask for it. This includes things like the time to complete a task, percentage of tasks completed, time spent on errors, number of commands or clicks used, and the number of calls to a help desk."

"As an example of poor usability, with my mobile phone, to change from Greek to English I have to click the buttons about 15 times, while with some other mobiles one click is sufficient. The target is to procure computing systems that are like those phones that can change with one click - that can be efficiently operated, effectively applied to support business processes, and quickly learned."

"It's not a perfect world, but if it was I'd have this kind of IT manager's wish list," he continued. "First would be to find the time to write down the usability requirements, because we're all busy people. Then to have the time to test usability, and to check if all users can use the functionality."

"We would also want to be able to study if half of the flaws can be corrected, as this could bring a big improvement, and to have tools to assess the usability of software beyond the claimed functionality."

However, finding the time to allocate to all of these tasks would be a Herculean challenge for most company IT managers, and Mr Makris is realistic enough to know that usability has not yet gained enough importance in the IT selection process to be regarded as a priority.

In a sense, usability has lost ground as technology has improved because the industry has allowed it to do so, he said.

"We're all responsible to some degree, or it wouldn't have gotten that bad," Mr Makris remarked.

"Usability may be hard to find, but when it's in front of us, we instinctively fall in love with it. We need to admit that there's a problem, then educate ourselves about the problem, and spread that knowledge to other IT managers."

Jonathan Earthy, Lloyd's Register

The issue of system usability, and the involvement of users in the design process, is a subject that is of vital importance to the maritime industry if it is to

take full advantage of improvements and innovations in technology, says Jonathan Earthy, principal human factors specialist at Lloyd's Register.

Dr Earthy's work concentrates on creating a better fit between the IT systems being used by shipping organisations and the people that are required to operate them. It is a topic that he feels is not given the consideration that the possible rewards should merit.

"The internet has changed what users believe can be achieved with computers," Dr Earthy told us.

"And, as a result, functionality is no longer the 'be all and end all', it is just expected. Now performance is more important, security is more important, and usability has come from nowhere to become a really important factor."

"How do we address this? We need to take a human-centred approach, an approach that fits systems and software to people, not the other way round."

It is at the design stage that Dr Earthy believes most can be done to improve usability, in much the same way as Mr Makris suggested. It is important for designers to develop the systems the users want, rather than working on improvements that they themselves see as being beneficial.

"People are the ultimate 'off the shelf' product - they can't change that much," said Dr Earthy. "Our systems, our procedures and our software have to adapt to the people and the jobs they are doing."

"This is about designing and operating effective systems of work, a combination of people, technology and procedures to achieve business goals, not just a piece of software."

Dr Earthy suggests that is also imperative to understand the context of use when developing these technologies, another point that Mr Makris had alluded to. What seems like useful functionality behind a desk in a computer lab may take on a whole new meaning when the same system is placed onboard a tanker vessel in the middle of the ocean.

"The ISO definition of usability mentions 'the capabilities of a system to enable specified users to achieve specified goals, in a specified context of use'," he told us.

"Context is an important part - who's using the system, what skills and training they have, what tasks they're doing, what equipment do they need, but also the social and physical environments in which the technology is used. Without understanding all of those things it's very hard for a designer to get the design right."

Design steps

There are a number of different ways that developers can help to make their design process more human-centric, Dr Earthy suggests. One of these is to make production very much a step-by-step process, constantly testing the system in conjunction with those you intend to use it when completed.

"When it comes to human-centred design iteration is very important," he said. "Check that you've got the right thing, and then continue to check you've got the right thing, because things change."

"I know it sounds expensive, but you need to think of IT as a consumable rather than a purchase. You need support contracts rather than once-off purchase contracts."

"Plan to throw the first one away, because you will anyway. The trick is to spend a small amount on the first one and develop prototypes of the right things. Evaluate the system with the seafarers, with the people who are going to be using the system. Not people who are easy to get hold of, but the people who are actually going to use the system."

'Functionality is no longer the be all and end all, it is just expected' - Jonathan Earthy, Lloyd's Register

This testing process should include assessments of usability from a number of different angles, and the collection of different types of information.

"There are some different methods for assessing usability," Dr Earthy explained.

"Listening and watching are obviously key, showing people products and letting them try them out, and then understanding what the users are saying about them. Taking measurements is also important, and it allows you to look at benchmarks and see if you're doing better or worse."

"Simulation is one good way of doing this, simple simulations of user behaviour can allow designers to think about various ways to improve things."

"Communicating the results of any exercises that are carried out is crucially important, in the right way to the appropriate people," he added. "Talking to project managers, talking to programmers, and communicating with the potential users about what happened and what changes are being made."

"Programmers aren't users, so there's no point in one programmer checking the work of another. Managers aren't users either, especially shore based managers, or purchasing staff or whoever it is."

Dr Earthy believes that companies need to be proactive in their communication on this topic, as the information does not often come back from the users unless it is explicitly sought out.

"Why don't we get letters complaining about software?" he wondered. "People complain about other tools but they don't complain about software."

"It's strange. To some degree I suppose you could say that people are paid to use the system and that's their job, but it certainly doesn't help the business to achieve better results."

Choosing suppliers

Dr Earthy believes that ship operators need to work closely with suppliers to achieve the goal of improved usability, and only choose to do business with companies that will listen to the specific requests of the organisation and do their best to fulfil these needs. He suggests a number of key factors in selecting a suitable vendor.

"A willingness to listen to your requirements, especially your users' requirements, and take action on that rather than just sending you the product that they've got on the shelf is important," he said.

"They need to have knowledge of the context of use, and perhaps should have that before they get the contract. See how the developers understand the context of use by getting them to state it back to you."

"Look for evidence of planning for human centred activities within their standard approach to developing software and systems, understanding the need to iterate, and the ability to put that into a contract and not get upset when it happens. They need the ability to provide training and to manage IT services."

"Start early," Dr Earthy added. "Don't just think about usability as you're about to buy the product, think about it very early on. Understand what you want to achieve, business-wise, and what the project needs to focus on to meet those goals."

"Make the best users available. Don't send the people that you just don't want to have working in the office, send the people who are best at doing the job to work with developers. But don't let them become hostages to the development project."

"Manage the relationship with the supplier and manage the relationship with the users. Understand that there are a set of processes that have to be done at the right time and the results have to be fed back to the company doing the development. The company then comes up with a set of options and the results of the decision are presented to the users - because they have to know what you have done with their feedback."

Managing the vendor selection process by increasing the importance of human-centred design can also mitigate some of the business risk involved in purchasing an IT system, Dr Earthy says, by avoiding the problems that software with a poor level of usability can create.

"The first problem is that information quality will be poor, because nobody is doing their job well with the information system," he told us.

"Decisions based on poor quality information are obviously not going to be of the highest quality. It's a waste of money, and of productivity."

"If systems are not of sufficient quality then we do not have control of our business. There's a loss of effectiveness, a waste of operational costs, a waste of time training. And there's a continuous loss of business opportunity."

"Businesses have information needs, but people do the work. Define the users, the job, and their resulting needs, and then plan to support the users in their work. If not, the training costs will be undefined, the support costs will be greater than expected, there will be errors and inefficiencies in use, and the system may not be used at all."

Usability management

As part of the debate about how to improve systems usability at the Digital Ship Athens 2007 conference, a panel discussion asked participants to give us their opinion about the best way to make sure a company is implementing software that employees can use.

Some of the suggestions provided a useful insight into different approaches to the issue of usability. These included the following comments:

"All (bridge) systems should be pre-evaluated by users in simulators before installation. If this is not done the best that can happen is that the system will not be used and the worst is an accident." - ***Georgios Georgoulis, University of the Aegean.***

"Let all users play with software before buying it. This includes IT guys (including hackers), purchasers, superintendents as well as seafarers. Then put them all together in a room to discuss what they have found." - ***Rene Jungbluth, Exmar Shipmanagement.***

"(Learn) from the knowledge of other people. Visit a company that is already using the software. The supplier should be able to arrange this for you. It does not cost anything and it is amazing how honest the users are. You will find out the theory and the practice, what is good, what is wrong, the tips and the hidden costs." - ***Charis Nassis, maritime IT consultant.***

"Get a group of users together and ask them what they need. Then get them to work with the designers as the designers develop the product, and fix problems as soon as they are found. It sounds like a lot of hassle but it actually saves a lot of money and will give you a product that can be used by most of the people." - ***Kartik Sinha, Inmarsat.***

"Improve your knowledge of the problem of usability, (so far we in the marine sector have focused on functionality). Ensure that developers ask users before building software. Involve users in all interfaces. Have independent, measured tests by users, ideally carried out by expert testers." - ***Tasos Makris, Gourdomichalis Maritime*** DS

A usability handout compiled by Tasos Makris and Jonathan Earthy, containing useful information about ergonomics and further suggested reading about the topic, is available for download at: www.thedigitalship.com/usability.pdf.

Page 18, reference [1]: Landauer, 1995: 'The trouble with computers: Usefulness, usability, and Productivity', MIT press

Shell to install Sperry bridge systems

www.sperrymarine.northropgrumman.com

Shell International Trading and Shipping Co is to upgrade the navigation systems on several of its liquefied natural gas (LNG) carriers with the latest generation of bridge systems from Sperry Marine.

The new navigation systems are to be installed on four LNG carriers managed by Shell for Bonny Gas Transport, a fully owned shipping subsidiary of Nigeria LNG Ltd. Sperry Marine will supply the systems and perform all of the installations.

The ships being upgraded are *LNG Finima, LNG Lagos, LNG Port Harcourt* and *LNG Bonny*. Each is being fitted with VisionMaster FT X-band and S-band radars and two electronic chart display and information systems (ECDIS).

Two of the ships, *LNG Bonny* and L*NG Port Harcourt,* are also being fitted with dual fibre-optic gyro systems.

Sperry Marine also reports that it has received orders from Shell for similar retrofits of radar and ECDIS navigation systems on the tanker Helix and two other LNG carriers in the Australia LNG Ship Operating Company (ALSOC) fleet, *Northwest Sandpiper* and N*orthwest Seaeagle.*

The Bonny Gas Transport LNG ships primarily trade on the Nigeria-Europe route while the ALSOC ships are on the Australia-Japan run.

UKHO - 25 to 30 per cent staff cut

www.ukho.gov.uk

The UK Hydrographic Office has announced plans for a "detailed restructuring," with a proposed reduction in staff count of between 250 and 300 permanent posts over the next 5 years.

UKHO is currently thought to employ approximately 1,000 staff, meaning that the proposed cuts would represent 25 to 30 per cent of the workforce, though UKHO stresses that the numbers are only estimates at this stage.

The net proposed reductions are between 250 and 300 (full time equivalent) posts which includes up to 130 new posts, together with a further 61 staff (including Fixed Term Appointment staff, Site Strategy team members and other staff in outpost locations), who will leave the business as their appointments come to an end.

The UKHO will be initiating formal consultation on a total potential range of posts affected of between 400 to 450 posts.

The announcement was made in the UK parliament by UK defence minister Derek Twigg, since the UKHO is part of the UK Ministry of Defence (MoD). It follows an extensive review of the UKHO's business and future by the UK government.

In his announcement, Mr Twigg said that the UKHO would continue to be based in Taunton, South West UK, and would continue to operate as a Trading Fund of the Ministry of Defence. Trading Fund status means the UKHO remains a government agency owned by the MoD and has the freedom to trade commercially to generate revenue and cover running costs.

There had previously been some speculation that the UKHO would be privatised, but this could have caused complications from a legal standpoint as, under international maritime rules, ships need to use charts which are government-supplied.

The purpose of the restructuring programme was to ensure "the business and its personnel are best equipped to meet the needs of the 21st century Mariner in an increasingly competitive environment." The most obvious way of doing this would seem to be finding a solution whereby the UKHO might be able to fulfil its functions at lower costs.

The UKHO's finances may also be hit by the maritime industry's gradual move from paper to electronic charts, which has created an opportunity for many other players to enter the chart supply industry, which was, to an extent, dominated by UKHO in the paper charts era.

"There have been some difficult decisions to make," Mr Twigg said. "As part of our commitment to UKHO's future we will be investing in a new building and substantially improved working conditions for UKHO's staff. We are currently looking at detailed options and expect to make a final decision early in the New Year."

"I know that these changes will cause uncertainty, so I would like to reassure staff that the consultation process will be handled sensitively and that everyone will be kept informed throughout the process."

UKHO says it will endeavour to redeploy surplus staff within the revised organisation, based on best estimates available, and do it all it can to minimise compulsory redundancies.

A spokesperson for UKHO confirmed that UKHO will not be contracting out any core skills, but will be streamlining its processes.

The UKHO would also not change its core business of "charting the world," the spokesperson said.

A full consultation process with trade unions has begun.

Kongsberg opens Korean office

www.kongsbergmaritime.com

Kongsberg Maritime Korea (KMK) has officially opened the doors of its purpose built new headquarters in Jungkwan, northeast of Busan, South Korea.

The official opening ceremony took place on 5th December 2007 and was attended by customers and Kongsberg Maritime management in addition to a number of local dignitaries, including the Norwegian Ambassador to Korea, Mr Didrik Tønseth and the Mayor of Busan, Mr Nam-Sik Hur.

"I trust that the new start for Kongsberg Maritime, a company of world-class competitiveness will give the city another driving force for the long-term development of Busan and re-organisation for the industrial structure," said Mr Nam-Sik Hur.

"We need to carry out more work locally in order to match Korean shipyards' ever improving productivity and to reduce lead times from contract to delivery," said Steinar Gran, president, KMK.

Kongsberg's new Korean office will aim to work closely with local shipyards

Type approval for Sperry Marine ECDIS

www.sperrymarine.northropgrumman.com

Sperry Marine has received type approval from the UK certification body, QinetiQ, for its latest VisionMaster FT marine navigation systems. This approval covers the electronic chart display and information system (ECDIS) portion of the VisionMaster FT series, with the radar and chart radar systems having received QinetiQ type approval last year.

Sperry notes that the VisionMaster FT ECDIS now complies with all IMO carriage requirements for navigating without paper charts when a backup ECDIS is installed. The split-screen capability permits two independent charts to be shown simultaneously, and an additional picture-in-picture window allows the user to view specific areas of the chart at different scales.

The ECDIS can also be integrated with the radar and automatic identification system for common target identification and overlay of data on the ECDIS screen.

"With this type approval from QinetiQ, the entire VisionMaster FT family of products is now certified to meet international standards for installation on ships subject to the Safety of Life at Sea Convention," said J. Nolasco DaCunha, vice president of Sperry Marine.

"This includes Sperry Marine's unique TotalWatch multi-function bridge workstation, which integrates all critical navigation functions in a single console. The TotalWatch technology has the potential to improve safety at sea by enhancing situational awareness for watchstanders."

Offshore Systems (OSI) has secured a contract valued at approximately $750,000 with the Royal Danish Navy to provide an upgrade to their ECPINS navigation software, in addition to a limited hardware upgrade. The ECPINS (a military version of the electronic display information system, or ECDIS) deal will include a common software baseline across all fleet and shore establishments.

TSS (International) Ltd in the UK has completed the delivery of 14 of its latest SC Brown Meridian gyrocompasses to the Turkish Coast Guard, which will be installed aboard the Coast Guard's older Patrol boats. The delivery includes the Gyro unit and a full fit of modern repeater units for each of the 14 vessels.

Hatteland Display reports that its marine computer and panel computer business experienced a record year of sales in 2007, recording a 53 per cent increase on the 2006 sales performance of its computers division by selling 2,510 units up to mid November 2007. The company says it was expecting a year end figure of 3,100 units, making for a total sales growth of approximately 89 per cent.

The **Transas** VDR/S-VDR 3200 has received type approval from QinetiQ. The system can now be supplied in VDR or S-VDR configuration, with the option of 6 different fixed and float free capsules, and features picture grabbing from two radars, ten sources of audio signal recording, and an additional external USB HDD (hard disk drive).

www.osigeospatial.com
www.tss-international.com
www.hatteland.com
www.transas.com

Trident releases marine PC and displays

www.tridentdisplays.co.uk

Electronics company Trident has introduced two new marine product ranges from Winmate, the marine bridge LCD display and the marine panel PC.

Trident says that the transflective film technology used in the displays enhances visibility in outdoor or bright ambient environments, and as such is suited to maritime applications like radar, navigation displays, automatic identification systems (AIS), and monitoring and surveillance systems.

The marine bridge system LCD uses what the company calls 'hyper dimming' technology that can control backlight brightness linearly from close to 0 per cent to 100 per cent by a dimming knob.

The marine panel PCs are designed to offer fanless, low power computing, and include an AMD CS 5536 chipset, transflective panel, IP65 protection, touchscreen and a wide voltage range.

The PCs are available with two USB 2.0 and three COM ports, VGA, LAN, and a compact flash socket for extension. They are available in sizes from 8.4 to 19 inches, with high brightness versions available on the 12.1 and 15 inch models.

Free ENCs from Chinese authorities

Maritime authorities from Guangdong, Hong Kong and Macao have jointly made the latest versions of electronic charts for the area available for free, for a usage period of one-year, for jet boats shuttling between the three jurisdictions.

China Communication News reports that the Guangdong Provincial Maritime Bureau, the Marine Department of the Hong Kong Special Administrative Region (HKSAR), and the Maritime Administration of the Macao Special Administrative Region (MSAR) have produced the 14 electronic navigational charts (ENCs) for free use by the more than 100 jet boats carrying passengers in the sea area near the Pearl River mouth.

The charts will be subject to a charge after the first year's free usage, though the authorities have declined to mention exactly what the subsequent charges will be.

Hong Sixiong, an official from Guangdong, said that the new charts will now provide seamless coverage of the sea area of the Pearl River mouth and will correct a few errors in the separate electronic charts previously prepared by the three authorities.

IMO regulations to come into force this year will require all high-speed craft manufactured after July 1, 2008, to be equipped with ECDIS, with all high-speed vessels subsequently expected to carry ECDIS after July 1, 2010.

US ID cards fail 'once in 50'

Concerns have been raised about the effectiveness of the US Transport Worker Identification Credential (TWIC) programme, run by the Transportation Security Administration (TSA), after a representative of US government contractor Lockheed Martin admitted that the technology used to run the system fails approximately one time out of every 50.

At a maritime security conference in New York, Jon Rambeau, director of credentialing technology for Lockheed Martin, explained that fingerprint biometric security systems used to identify enrolled workers at ports and other secure areas currently fails to match the fingerprint data to the smart cards, that affected maritime workers have been issued with under the programme, 2 per cent of the time.

TWIC ID cards are supposed to allow people working in maritime facilities, or on vessels in certain areas, to have unescorted access to security sensitive locations, once their identity can be authenticated by these cards and checked against an approved database containing the fingerprint data of the card holder.

TWIC programme director Maurine Fangey, also present at the conference, responded by saying that the programme would be willing to look at alternative biometric systems. However, to do so the Department of Homeland Security would have to establish what type of systems would be backward compatible with the database that has already been established, through consultation with the National Institute of Science and Technology.

These problems represent a further embarrassment for the TWIC programme, which only entered operation a matter of months ago after a lengthy development and testing process.

Ms Fangey had praised the system in a report to a Homeland Security Congressional committee on October 30th, remarking that: "TWIC will be one of the world's most advanced, interoperable biometric credentialing programs, and is powered by state-of-the-art technologies."

Ms Fangey also commented that: "after our contractor verified system readiness, TSA completed independent verification before beginning final test enrolments in the field using live vetting on government and trusted contractor personnel."

Having moved from a position of such assurance to considering possible replacement technologies within the first few months of operation of the system, it looks like it has indeed been a difficult beginning for the TWIC programme.

AMSA to buy 500 EPIRBs

www.rfd.com.au

The Australian Maritime Safety Authority (AMSA) has approved a multi-year commitment with RFD Australia to purchase over 500 EPIRBs (Emergency Position Indicating Radio Beacons) manufactured by US-based ACR Electronics, a deal which RFD says is the largest single contract for EPIRBs agreed in the country.

The contract will include several hundred SATELLITE2 406 and GlobalFix ACR EPIRB models, said RFD.

The ACR SATELLITE2 406 EPIRBs are destined for Thursday Island, where local Water Police will make the EPIRBs available to local citizens, while the GlobalFix 406 EPIRBs are to be used by a variety of government agencies in Brisbane.

With the aim of providing a safe work environment for employees who go to work on the water, these EPIRBs are to be directed to agencies that include Water Police, Customs and Coast Watch.

According to Warren Levin, national defence manager at RFD Australia, securing the AMSA contract for EPIRBs has been "a giant accolade for both the ACR branded product and RFD."

AIS signals to be transmitted from North Foreland

Trinity House has issued a Notice to Mariners, advising that, as of the 8th January, 2008, AIS (automatic identification system) signals will be transmitted as an Aid to Navigation at the North Foreland Lighthouse station in the UK.

When observed on the Minimum Keyboard Display (MKD), the minimum carriage requirement for SOLAS vessels, for each aid to navigation the mariner will see an MMSI number (992351020), name, position, and bearing and distance from observer.

Trinity House notes that mariners using certain radar and electronic chart displays may see a symbol on the display and on interrogation, as a minimum, the above information will be available.

If displayed, the screen symbol for an AIS AtoN is a diamond shape. Currently there is a variance on information that will be displayed by different manufacturers on Electronic Chart and Radar equipment.

Paper charts will have an amendment applied with AIS, written in magenta, adjacent to the AtoN.

PC Maritime agrees training deal with Jeppesen and UKHO

www.pcmaritime.co.uk

PC Maritime has reached an agreement with navigational chart manufacturers Jeppesen Marine (formerly C-Map) and the UK Hydrographic Office, whereby both companies have pledged to supply official ENC charts at a 50 per cent discount, and their own format charts free of charge, in support of training initiatives being carried out using PC Maritime's Navmaster ECDIS for Training.

This agreement should help to see that any gaps in ENC (electronic navigational charts) coverage for the ECDIS (electronic chart display information systems) training programme be filled.

Jeppesen Marine is offering a vector-vector solution by giving a 50 per cent discount on CM-ENC SENC charts, with the option of additional C-Map CM93/3 charts completely free. The UK Hydrographic Office is offering a vector-raster solution by providing S57 ENC charts at 50 per cent discount, with its ARCS raster charts free of charge.

For those training organisations wishing to take advantage of these offers, the only condition laid down by the chart manufacturers is that the training being carried out must conform to STCW95 standards.

PC Maritime says that the Navmaster ECDIS for Training allows users, such as marine colleges or in-house trainers, to enhance navigational safety by teaching the safe operation of ECDIS equipment, the proper use of various types of ECDIS-related information as well as knowledge of the capabilities and, equally crucial, the limitations of ECDIS.

The system can be installed over a network to allow a number of students to get involved at once, and can also be interfaced to NMEA (National Marine Electronics Association) simulator programs and connected to actual bridge instruments such as GPS, gyro, speed log, ARPA (automatic radar plotting aids) and AIS (automatic identification systems).

Since its launch, three large Navmaster ECDIS for Training networks have been installed. Dalian University in China has a 31-user system in operation while the Maritime Institute Willem Barentsz in the Netherlands now has a 30-user system in operation.

In Indonesia, the national oil and gas company Pertamina has installed a 13-user system in its in-house training facility. Smaller networks have also been provided to training establishments in India and Italy.

The Maritime Institute Willem Barentsz has a 30-user network for ECDIS training

'It'll be back' - Schwarzenegger reprieve for PORTS

A monitoring system used to aid vessel pilots and captains transiting the port of San Francisco has narrowly avoided being shut down due to a lack of funding after California governor Arnold Schwarzenegger intervened to ensure that the technology would continue to be available.

The Physical Oceanographic Real Time System, or PORTS, consists of seven reporting stations dotted along the coast from Redwood City to San Francisco, Oakland, Richmond and Martinez, which provide online tidal and weather information updated every six minutes.

The PORTS system costs approximately $250,000 annually to operate. With current state funding from the Office of Spill Response to expire at the end of June, it initially appeared that the system would be discontinued after further funding was refused.

However, Gov Schwarzenegger has since ordered the Office of Spill Response to continue to provide funding for the system, until at least June 30 2009.

Avoiding a repeat of the Cosco Busan accident in November 2007, which led to more than 50,000 gallons of oil being released into San Francisco Bay, was a particular concern cited by Gov Schwarzenegger in his reasoning for issuing this order.

He has also ordered the Office of Spill Response to begin work on plans to secure permanent funding for the system.

Officials in the area have expressed their delight that the system is set to continue, and have pointed to the safety benefits of providing this updated information to those navigating the Bay.

"The money, $250,000, is not much. An oil spill can cost tens of millions," said Joan Lundstrom, chairwoman of the San Francisco Bay Harbour Safety Committee, speaking to Mercury News.

"This system wouldn't have prevented the Cosco Busan. That was a visibility problem," added Alan Steinbrugge, director of external operations at the San Francisco Marine Exchange. "But it can reduce the risk of other kinds of shipping accidents."

The PORTS network was created in 1996 by the National Oceanographic and Atmospheric Administration (NOAA). NOAA, however, declined to offer further funding after the programme was up and running, with the state Office of Spill Prevention and Response picking up the bill most recently.

The system can be accessed at http://tidesandcurrents.noaa.gov/ports.html.

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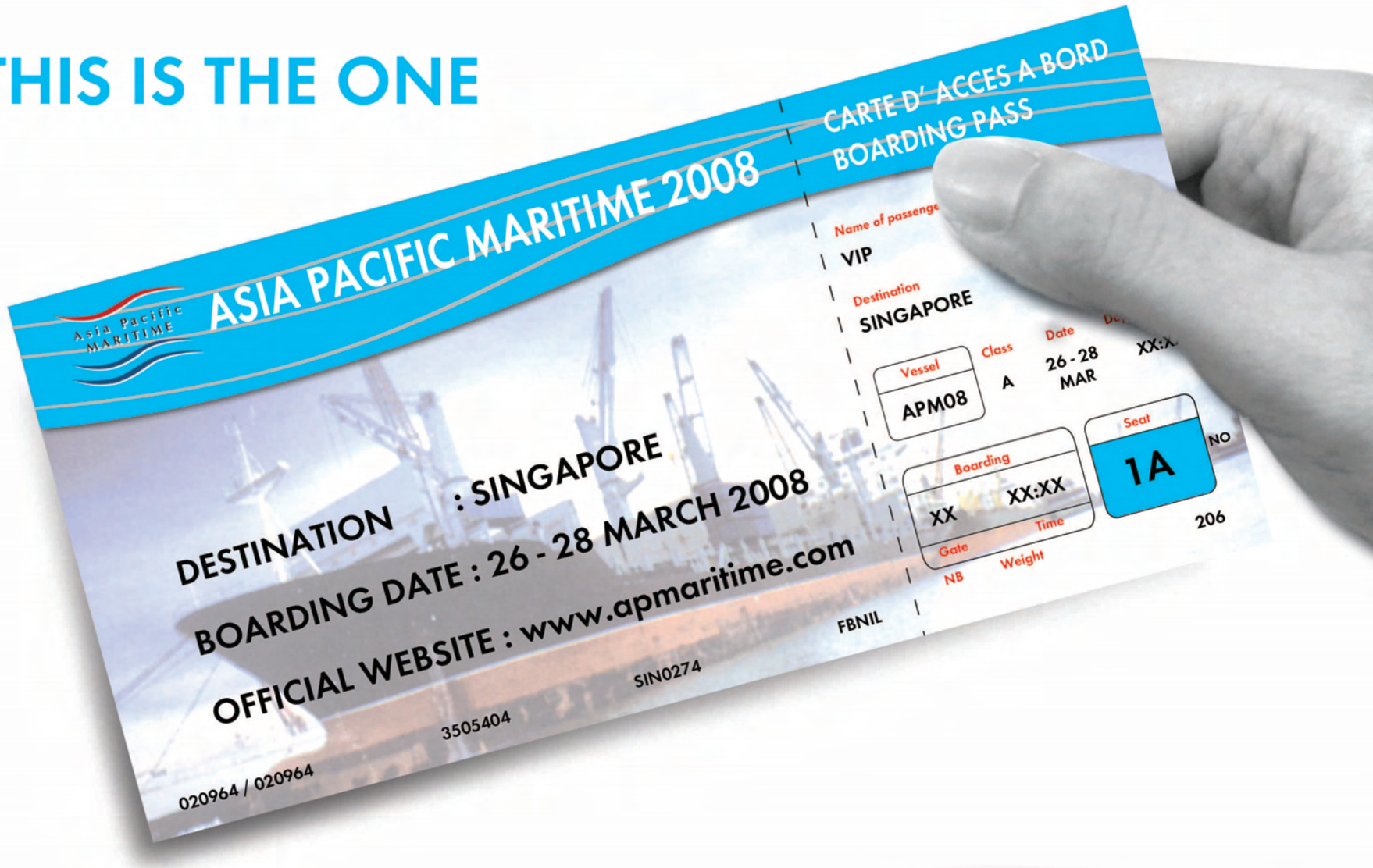

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Sperry Marine integrated bridge systems for UK and Iceland

www.sperrymarine.northropgrumman.com

Sperry Marine has been selected to provide a new-generation integrated navigation and bridge system (INBS) for the UK Ministry of Defence's (MOD) Future Aircraft Carrier (CVF) project.

The INBS will be based on Sperry Marine's VisionMaster FT technology and will incorporate all of the ships' navigation sensors and systems into a single bridge using an advanced network architecture, that will integrate both radar and chart functionality.

"Northrop Grumman Sperry Marine is delighted to have won this important contract for mission critical equipment in the CVF project," said J. Nolasco DaCunha, vice president of Sperry Marine. "We believe that our innovative and fully integrated navigation solution is ideally suited to the demanding criteria for the Royal Navy's future carrier operations."

The aircraft carriers will be the largest capital ships ever constructed in the UK or operated by the Royal Navy and the most capable carrier force outside the USA. The scheduled in-service dates for the carriers are 2014 and 2016.

Sperry Marine has also agreed a deal to supply an integrated bridge system (IBS) for a new offshore patrol vessel (OPV) being built in Chile for delivery to the Icelandic Coast Guard.

The contract was awarded by ASMAR Shipyard in Talcahuano, which is building the 93-meter ship for the Icelandic Coast Guard. The construction of the ship was approved by the Iceland government in 2006 to replace an aging 64-meter patrol vessel, which has been in service since 1960. The new ship will be commissioned in 2009.

IBS port system for Maldives

www.ibsplc.com

IBS Software has signed a deal with the Maldives Port Authority to implement and maintain its iPort port operations management solution at the port of Male, the primary port of call in the Republic of Maldives.

iPort is an integrated port operation management solution that supports functions such as marine operations, cargo and container operations, yard operations, and cargo delivery, as well as billing of all services rendered by the port. The system is currently being used at three ports under the supervision of the Sharjah Ports Authority.

"We are certain that iPort will ensure improved service levels and revenue," said VK Mathews, chairman and CEO, IBS Group. "We look forward to a long lasting relationship with the Maldives Ports Authority."

Mahdi Imad, managing director, Maldives Port Authority added: "iPort will help us manage our resources optimally while helping us adapt to changing business needs at a time when we are looking to emerge as a prominent port services provider that caters to the needs of national and regional trade. We look forward to the successful implementation of iPort and to a productive partnership with IBS."

RCM wins Seatrade technology award

www.rcmmarine.com

RCM Marine has won the 2007 Seatrade Award for New IT Application for the Shipping Industry, for its monitoring technology that detects variations in vibrations onboard merchant ships that could indicate potential engine problems.

If a variation is detected an alarm identifying the problem is relayed to an onboard control panel, to the bridge, and also by e-mail via satellite to the ship operator's shore based offices. RCM Marine's offices in the UK also receive notification by e-mail of any variations.

"Our system is all about preventing problems before they get out of hand," said Bob Hargreaves, managing director at RCM. "If a potential issue is identified early it can save our client literally hundreds of thousands of pounds."

"We are now dealing with major shipping companies around the world, who come to us for meetings, presentations and training. At the moment, we are in a rapid growth period and have had a great deal of interest in our monitoring equipment from blue chip shipping companies around the world."

RCM will be hoping to build on these successes in 2008, having recorded sales of approximately £2 million in 2007.

Renewed interest in Integrated Navigation Systems

If used properly, Integrated Navigation Systems (INS) have the potential to increase safety. Will recent IMO initiatives encourage a further uptake of this technology? Dr Andy Norris examines the possibilities

The inherent capabilities of an Integrated Navigation System (INS) have really not benefited the majority of ships, as few have been installed. Many new builds proclaim to have an Integrated Bridge System (IBS), but these are often little more than an integrated housing of colour-coordinated conventional units.

This means that the ease and integrity of operation that INS can offer is not being realised and so the opportunity for increased safety is being lost.

There are a number of reasons why INS has not generally been taken up, but relatively recent developments in technology and the newly revised IMO standards for INS are likely to renew interest in fitting such systems.

Because of their modular software and workstation approach, multifunction displays (MFDs), now available from a number of manufacturers, are the ideal basis for INS functionality.

In the future, an MFD could be type-approved as an INS with, for instance, embedded ECDIS (electronic chart display information systems) and radar functionality. It could therefore be purchased as an approved item and fitted to a ship. The bridge then becomes a network of workstations, fed from multiple sensors.

In the past, bespoke bridge systems have had to be approved separately as an INS, greatly complicating the approval process and therefore becoming a major disincentive to fit.

New IMO standards

For some time an IMO working group has been developing revised INS standards.

This work has now been completed and the IMO Maritime Safety Committee approved them in October 2007. They will come into effect in 2011, replacing the original standards, which date from 1998.

The new standards - defined in MSC.252(83) - form a major revision and comprise a much more comprehensive document compared to the original.

The original standards had been largely ignored by suppliers of bridge navigation equipment. However, many concepts from them have become accepted principles, such as the importance of having a common consistent reference system (CCRS) and a common consistent reference point (CCRP).

The CCRP is a defined point on the ship to which all measurements, such as target range, bearing, CPA and TCPA are referenced. A CCRS ensures that the data passed around the various subsystems of an INS are consistently referenced, for instance in units of measurement, time and CCRP.

The new standards state that the purpose of an INS "is to enhance the safety of navigation by providing integrated and augmented functions to avoid geographic, traffic and environmental hazards."

In particular, they permit the installation and use of an INS in place of standalone navigational equipment. This is an important new clause, recognising that networked MFDs provide a complete navigation solution. They are called 'Task Stations' within the standards.

Task orientation is seen as an important aspect of an INS. This means that specific display settings can enhance specific tasks, such as route planning, route monitoring, collision avoidance, alert management, automatic control, anchor watch, search and rescue, and man overboard.

The significance of integrity monitoring is highlighted, which is an intrinsic function of an IMO-defined INS. This is based on the automatic and continuous comparison of data from two or more sources to establish that they are consistent, giving much improved data integrity.

IMO's revised INS standards will come into effect in 2011

It is a major advantage of an INS - and also forms an important concept within e-Navigation.

To comply with the new standards it must be ensured that the workload is kept within the capacity of the operator. It must complement the mariner's capabilities and compensate for any limitations.

The standards contain four modules, covering the requirements for:

- The integration of navigational information
- The operations and functions of the INS
- Alert Management
- Documentation

Module A ensures that the INS will use navigation data from sensors in a consistent and logical manner, particularly when data is processed and combined to give enhanced situation awareness.

In general, it will not allow suspect data to be used by further processes and a warning or caution is always given to the user that the data has become unreliable.

Module B is task-related. It identifies a number of common tasks and their specific requirements. It also allows other tasks to be included, as seen useful by the manufacturer.

For those tasks integrated into a particular INS, it specifies requirements arising out of the INS standards, as well as the need to comply with IMO requirements for specific equipment relevant to the task, such as radar, ECDIS or a Track Controller.

Alert management

The required alert management functions within an INS (Module C) are likely to be a major reason why users will quickly come to appreciate the installation of an INS complying with the new standards.

Bridge staff understandably complain about the number of alarms and warnings on existing bridges. What can often make things worse is that a single fault can create multiple alarms, all of which need, at the least, acknowledging.

An INS alert management system designed to the new standards "harmonizes the priority, classification, handling, distribution and presentation of alerts, to enable the bridge team to devote full attention to the safe navigation of the ship and to immediately identify any abnormal situation requiring action to maintain the safe navigation of the ship."

This is seen by IMO as an important addition to the INS standards, and the principles on alert management may well extend into other IMO equipment standards.

A central alert management HMI (human machine interface) is required, that avoids superfluous audio and visual alarms and is designed to support the bridge team to identify the source and reason for the abnormal situation.

Alerts are classified into three priorities: alarms, warnings and cautions. Alarms need immediate attention and action to avoid a hazardous situation; warnings are given in situations which could become hazardous if no action is taken; cautions require attention, as they are indicating extraordinary conditions but of a non-urgent nature.

Alerts are sub-classified into A and B categories. Category A alerts signify that they have been generated by a system that needs to be interpreted on a graphical display, such as a radar or ECDIS. This includes, for instance, CPA/TCPA and lost target alerts.

Category B alerts are connected with a direct situation that can be shown at the central alert management HMI. For instance: "No data from echo-sounder."

The INS evaluates individual alerts with system knowledge, so that it can reduce the number of high priority alerts. Category B alerts can be set so that they only occur on the central alert system and not on individual equipment.

All audible alarms sounding can be temporarily silenced, although if the alarms are not acknowledged within 30 seconds the audible signal will restart.

Documentation

There are detailed requirements for what is needed to be included in the documentation, including operating manuals. Of great note is the requirement for the provision of onboard familiarisation training material. This is the first time that this has been included in an IMO performance standard.

The material is required to explain the configuration, functions, limitations, controls, displays, alerts and indications of the INS. It should allow an OOW, unfamiliar with the ship's equipment but trained in the generic use of INS, to become rapidly acquainted with the installed system.

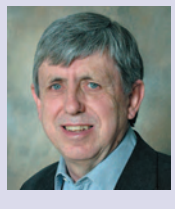
The training may be designed to be PC-based, as a training mode on the fitted INS, as a video or as a printed manual.

In January 2008 the US National Transportation Safety Board concluded that the dangerous heeling of the Crown Princess cruise ship in 2006 stemmed from inadequate training and lack of familiarity with the integrated navigation system, underlining the importance of good familiarity training.

Emphasis by IMO on the importance of up-to-date, accurate and user-friendly manuals was also made with the approval of MSC/Circ.1253 at the October meeting of MSC. IACS Recommendation No 71 was recommended to be used as a model for new manuals.

The Circular emphasises that the International Safety Management (ISM) Code provides an enforcement mechanism to ensure that manuals are up-to-date and accurate.

It will be interesting to see whether port authorities will increase their checks on the availability of suitable manuals. DS



Dr Andy Norris has been well-known in the maritime navigation industry for a number of years. He has spent much of his time managing high-tech navigation companies but now he is working on broader issues within the navigational world, providing both technical and business consultancy to the industry, governmental bodies and maritime organizations. Email: apnorris@globalnet.co.uk

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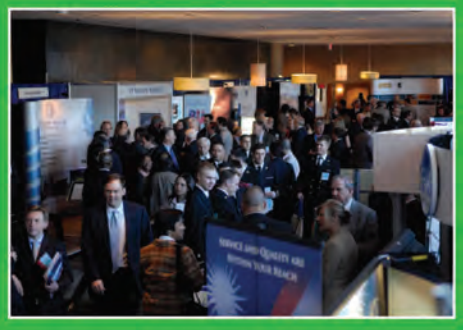
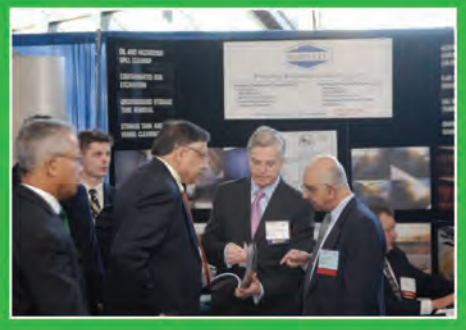

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