



Performance, Outcomes and Results  
The MET Network with NGO Observer Status at IMO

# GlobalMET NEWSLETTER



To promote, develop and support in the spirit of cooperation, the common interests of its members in all matters concerning the development and quality of maritime education and training.

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# Editorial

**I**t is always a shame to see ships in collision, because it means that two people have not been doing the job for which they are paid. The COLREGs are quite clear on this matter. If you are to give-way, then that is what you do, give-way. If you are the stand-on vessel and the other vessel does not give-way, then you may take some action to avoid collision, and in the final moments before the collision, you must take action. Not following the rules, unsurprisingly, leads to collision.

What can be done? This is a question that has been troubling mariners and legislators for many years. The threat of increased penalty hasn't worked. The use of simulators in training has had limited success, and I speak as one who is a keen exponent of the use of simulators in training. Badly designed training, lack of mentorship, lack of guidance on board by senior officers due to lack of time, the difficulty recruiting the "right" type of young officer, all have been blamed for the lack of improvement in accident statistics. The finger, inevitably, points to training, and here lies the problem. If the training is perfect, and student understanding tested to be the best it can, then there should be no collisions, since all seafarers will act in accordance with the rules. So, what goes wrong? Is it the seafarer not applying the training? Is it the training in the

first place? Perhaps it is time to review the training, and how the application of the COLREGs is taught.

In this issue, we look at this problem, and also at the advances in digital technology aboard ship. We are also indebted to the organising committee of the 2017 World Ocean Congress for Qingdao for bringing to our attention their event. Thanks as always to Rod Short for his ever interesting Short Story.

This may well be my last editorial as Executive Secretary. I have enjoyed my time in the post, but I agreed to take the role on for a year and see how it went. My other activities are taking up an increasing portion of my time, and I find it more and more difficult to allow the time for this role that it so richly deserves. I intend to remain associated with GlobalMET, and you may find my contributions in this Newsletter in the future.

By

**Capt. Richard Dunham**  
PGDip Cert Ed



Members and their staff members are encouraged to submit their thoughts through authoring articles for publishing in our Newsletter. Articles should reach the Secretariat by the Friday of each month. Publication usually will be in the 3<sup>rd</sup> week of each month. GlobalMET reserves the right to reject any article that may be deemed inappropriate for the promotion and well-being of MET.

## Are we Dealing with Unexpected Events in the Command Bridge or Wheelhouse?



In recent times, we have two serious collisions between naval ships (Destroyers) and merchant ships (a tanker and a container ship) with fatalities. Each collision was between a naval ship and a merchant ship). Each class of ship is modern and well equipped with up to date navigational equipment. Each ship was manned by qualified and experienced Captains, officers and crew. The numbers differ very critically as each vessel had different roles. However, from the time of observing other ships in the vicinity in the seaway, one highly crowded and the other not so crowded, all ships had to perform similarly to the International Regulations for Preventing Collisions at sea (COLREGS) 1972 as amended. These two collisions were well reported in media. At time of writing investigations were still in progress.

Now it is imperative, we not only understand the rules but also practise and execute the rules to a standard acceptable to all practitioners. Bear in mind this statement, as to date, there has not been a formal agreed standard of practice and performance criteria, despite the STCW convention 1978 as amended. Many aspiring experts have written voluminous editions on COLREGS but none have yet contained an agreed formal standard of performance and practice.

In the previous issue I wrote about having an instrument in place for problem solving. In this issue, I will delve into unexpected incidents and the likely insufficient competences that are not developed or provided for in training bridge watchkeepers and Masters.

In this article, I would like to expand the thinking towards the actual development and training of watchkeepers. There is that constant reminder about situational awareness, a rather misunderstood and complex concept expected of the average OOW and any other person engaged in a navigational watch at sea.

In general terms, situational awareness (SA) means “appreciating” all you need to know about what is going on when the full scope of your task is taken into account. Is this enough indication (plain literacy and language) that there is more to just being very good at seamanship, navigation and knowing your COLREGs. No certainly not because what each individual must have beyond situational awareness is the ability to be visualising, thinking ahead, beyond the existing situation and how the situation might develop. This then includes multi-skilling, encompassing self-management, self-conceptualisation, self-determination and accountability. The decisions made must be lawful and appropriate to the conduct and safety of the ship, other ship(s), property, personnel and the environment. Sounds a lot? Not really, as these are embedded within the dimensions of competence. Did everybody in training, learning, mentoring, coaching and praxis provide this “black art”?

There is a need to always facilitate training and assessment to competency based education, training and assessment (CBETA) and outcomes based education (OBE). What about performance standards for facilitators and trainers? These are not enforced nor in place in maritime training, MET. We remain one of the few professions that are still broadly using knowledge based learning, privileging rote, regurgitating volumes of information at onerous examinations (non-competency based assessments by evidence to the standard of competence) and yet every recipient of a Certificate of Competence (CoC) is deemed

competent. Quite an anomaly, one may wonder.

The increased use of automated systems has likely assisted seamanship (non-gender specific) and maritime safety. Whether it has improved seamanship and maritime safety is debatable. Situations that require human intervention are typically unforeseen and complex. It demands quick judgment and decision-making skills. After long periods of automated passage, such situations can occur. Switching suddenly over to manual and an active role could be difficult, and bothersome. In many cases, even when transiting narrow and congested sea-lanes, the ship has not gone into manual mode. Many reasons, excuses and so on but I won't go into it at this time.

I call upon the need to be trained to work continuously without loss of decision making skills and/or instantaneous reflexive action; ability to make the right decisions and actions when something out of routine and ordinary or even anticipated activity occurs. This is the moment of the unexpected event, of being “**startled and surprised**”. Airline pilots experience the “startle and surprise effect” and are trained to act accordingly when confronted with such events in flight. Obviously the two recent events involving collisions between very modern and well-equipped ships were found wanting in decision making? Were those officers (OOWs) and Captains in any way startled or surprised that actions were not timely or swift?

Not surprisingly; this part, within the dimensions of competence is often ignored in maritime courses of training. There are 5 dimensions:

- Task Skills – Performing the task/job to the required standards
- Transfer skills – ability to transfer skills and knowledge and apply them to a new environment/task
- Task management skills (variables) – able to do more than one thing at a time and managing the tasks correctly
- Contingency Management Skills – respond appropriately to irregularities and breakdowns in routine within a job or workplace
- Job role environment skills – able to deal with the responsibilities and expectations of the work environment. This often includes financial and economic applications.

Foundation Skills and Employability Skills are embedded in these dimensions

(Source: NVSC Handbook – A Guide to Writing Competency Based Training Materials)

### What is Startled and what is Surprise in Our Maritime Context?

Perhaps we can take a page out from aviation practice.

- **Startle** is a brief, fast and highly physiological reaction to a sudden, intense or threatening stimulus, like a gunshot (Landman A, etal 2017). In our case perhaps an explosion or loud bang that can be heard whilst on passage or a lightning strike.
- **Surprise** is an emotional and cognitive response to unexpected events that are momentarily difficult to explain, forcing a person to change his or her understanding of the situation (Forster & Keene 2015).



How do we prepare an OOW to be ready during operations when he/she is startled or surprised? Can the Captain train or mentor the OOW?

Earlier, I mentioned the dimensions of competence. Its not enough to know what the dimensions are but imperative that every candidate for the OOW CoC be trained and assessed in accordance with the dimensions to the level of operability or in training terms to the standards for employability skills aka foundation skills. We now return to the ongoing discrepancy found in most training programmes, in particular IMO model courses where every course is instructor-centred (knowledge based, non-adult learning) and none learner-centred (competency-based, adult learning) despite the borrowed terminology every now and then found in the text. The standards of competence to make up each qualification is either missing (unagreed - unpublished) or so poorly written that most MET professionals end up making it up in their own words. Herein lies the trap as each interpretation varies with another. In most cases, not a learned outcome aligned to standards.

It is imperative that each standard of competence and its elements (dimensions) be uniformly described (Blooms Taxonomy) accompanied by the requisite performance criteria for the purpose of valid evaluation based assessments that satisfy

- Knowledge, i.e. volume of learning acquired in the right proportion (underpinned work knowledge) to perform to work place standards.
- Skills (demonstrable) to perform in accordance with the performance criteria. Not written examinations that do not produce valid assessments of having attained the level of competence per the uniform standards.
- Attitudes i.e. correct behaviour required to perform at the workplace to agreed standards.

### Competency Based Learning & Assessment

We are fortunate today for the advancement of full mission bridge simulators that can produce the “startle” and “surprise” components of shipboard bridge practice. It only leaves for the industry to augment it with universally agreed standards of competences for bridge OOW operations. The STCW 1978 as amended is unclear in its descriptors. The requisite Knowledge, Skills and Attitudes must be factored in against each element of the competences. Each competence must be described and attained in accordance with Blooms and SOLO Taxonomy. Assessments must be current, fair, reliable, flexible, valid and safe.

It is prudent to note that the level of competence for facilitating such learning is also a highly desirable pre-requisite. It may not be so in many establishments.

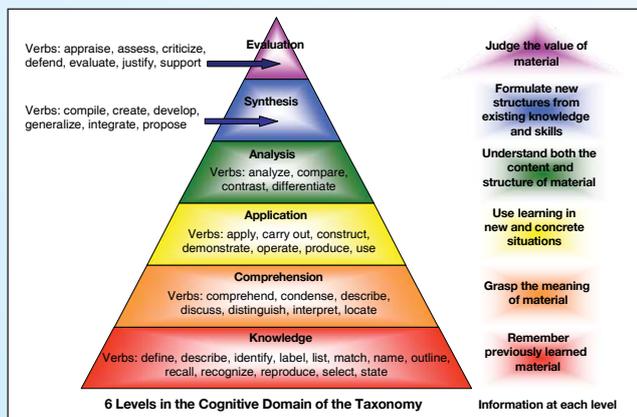


Figure 1 - Blooms Taxonomy

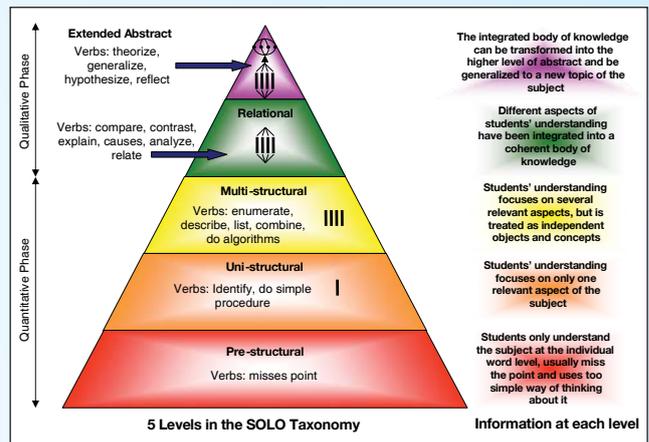


Figure 2 - SOLO Taxonomy

Source: AR@HKU

### Leadership and Management

It is obvious that Maritime Education & Training (MET) practitioners in maritime administration and learning institutions hardly practise CBETA/OBE, seldom innovate or foster better learning and assessments strategies to ensure that their learners perform to standards. Onerous examinations (non-competency based) requiring memorising information continues unabated. The leadership must change from traditional collegiate type, satisfying institutional rules to one that is dynamic, changing, daring and forceful. This means that institutional leaders across the spectrum, top, middle and bottom must come out from the comfort of their sheltered existence and become shakers and movers to be strategic leaders and managers. Without this, change cannot happen and the obsessive tinkering habits cannot be eliminated.

Leading is not the same as teaching, and leaders in MET institutions require different capabilities to those of high school or university classroom teachers. This recalls the scarcity of leadership development programmes for MET practitioners.

### Further Reading and References

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## "Vibex"



SHELL TANKER s.t.s. "VIBEX" - 31,817 D.W.T.

Vibex departed North Shields on 20 July 1961 and headed for the Persian Gulf. A full cargo of crude for Melbourne was loaded in Ras Tanura in Saudi Arabia, not far from Bahrain, hot oil flowing into the ship in the August heat and haze. It was a joy to return to the open ocean again when we cleared the entrance to the Gulf.

A Marconi trainee had joined in North Shields. He was young and naive, unhappy about going to sea on a crude carrier rather than on a passenger ship and also about leaving the love of his life back in Scotland. He received no mail at Suez, nor at Ras Tanura, where quite a lot of mail came aboard. The Radio Officer, an experienced older man, began to express concern about the trainee's depression. After leaving the Gulf the next land was Cape Leeuwin in Western Australian, which, after 17 days at sea, showed at daylight about five miles off. The R/O heard the trainee sobbing while leaning on the rail adjacent to the entrance to the radio shack, looking at the land. He immediately became very concerned and went over and put his arm around him. The trainee broke down, pleading to be allowed to swim ashore. The R/O took him into the radio shack and called the Master, expressing fear that he might jump overboard. The trainee was then placed in the hospital and put under the care of the Chief Steward. On arrival in Melbourne he was interviewed by a doctor who boarded with the pilot and was then taken ashore. We heard later that he'd been flown back to the UK and probably left Marconi's employment.

After discharge of the cargo at Williamstown Pier, there were no surprises in being told to return to the Gulf. There we loaded a full cargo of crude in Mina al-Ahmadi in Kuwait for 'Gibraltar for orders'. Approaching Gibraltar we were ordered to head for 'East Coast N America, north of Cape Hatteras' and then, when well out in the N Atlantic, were told to go to Montreal.

About half-way across, the powerful steam turbine pushing the heavily laden ship into head seas so that green water was coming over the bow and spray was all over the ship, a sail was seen on the port bow during the afternoon. The Master ordered a slight alteration of course to take us closer, and we had the splendid sight of a fishing schooner making the most of wind and sea behind her, probably returning to Portugal from the Grand Banks fishing grounds.

While passing between Newfoundland and Cape Breton, I came very close to having a collision during the 2000-2400 watch. Visibility was poor, with patches of mist and fog. Just before midnight, I returned to the bridge wing after a short spell in the chartroom to see the lights of a ship close on the starboard

bow, with the lookout calling that he had just seen lights appear out of a fog bank. Immediately the auto-pilot was disconnected and the lookout told to take the wheel and alter hard to starboard. I also sounded one short blast. What appeared to be a ferry passed down our port side, about half a mile off, much less than the Master's requirement that no ship was to come within a mile of us. He quickly came onto the bridge wanting to know "what the hell" was going on, but took it quite calmly telling me he expected a better lookout, given the traffic and visibility. At least it was no more than a 'near miss'!

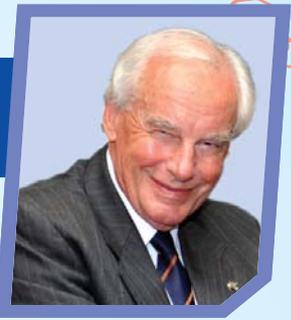
That Master was one of the most senior in Shell's London based fleet. He'd survived sailing on tankers during WWII and was a quiet, confident man looking towards retirement. The next day we were involved in a serious accident that brought retirement much sooner than he expected.

After embarking a St Lawrence pilot downstream from Quebec on Friday 13 October, because of her size and draft, Vibex was to anchor at Quebec and discharge 3000 tonnes of crude into a small tanker, before proceeding upriver to Montreal. The pilot told us that his daughter was to be married the next day and that he was looking forward to getting home once Vibex was anchored. It was early evening and the tide was flooding, so the pilot had to turn the ship short round, using the starboard anchor and propeller. The anchor held briefly then dragged as the current pushed Vibex toward the southern bank. Use of the engine didn't stop her from riding up on some boulders. I was off duty and writing a letter in my cabin when I felt the vibration and the ship list. I went to the bridge and was told to check overside to see if there was any leakage. I went onto the foredeck, as she was obviously aground forward. The smell of crude was strong and I could see oil spreading over the surface of the St Lawrence.

It wasn't long before two harbour tugs were made fast, but even with their assistance, using the propeller proved fruitless. We were stuck hard and fast. Later, with the tide ebbing, Vibex taking a greater list. Around 0100 the crew were taken ashore for safety, except for the deck and engine officers. I turned in around 0200, but couldn't sleep because of the fumes, which were strong as it was a calm night, and through worrying about the situation. The authorities stopped all traffic on the river and a state of emergency was declared. Police and firemen patrolled the river banks to keep the curious away and lower the risk of fire due to someone smoking. Our ullaging of the tanks showed that some 3,000 tonnes of crude had been lost from numbers 1 and 2 tanks.

Our pilot remained on board overnight, but was relieved the next morning, however he couldn't have been in the right frame of mind to really enjoy his daughter's wedding. The relieving pilot told us that reports on the radio had mentioned oil a hundred miles downstream, with serious damage to wildlife, especially ducks. About 30 ocean going ships were held within the 25 mile emergency area for 24 hours.

It was a great relief when, around noon on the Saturday, a cold northerly came in and blew the fumes away. That afternoon a Shell Superintendent from New York arrived and the Master signed a salvage agreement with a local company.





An experienced Canadian Salvage Master then took charge of operations. Vibex's Master, although retaining overall responsibility – 'Master under God' – stayed in the background, but kept a keen eye on activities.

On Sunday we discharged about 5,000 tonnes into two small tankers, the salvage gang laid out ground tackle and a 3,000 bhp tug and three harbour tugs were attached, in preparation for high water that night. At the first attempt at 2,300, Vibex slid gently off the boulders to the delight of all involved and was anchored opposite the Heights of Abraham, the Chateau Frontenac and the Quebec wharves. At 0400 the following day Vibex was, rather appropriately, put alongside a scrap iron berth. During subsequent days divers observed only one hole, about 2' by 1', but there were also cracks and deep indentations in the vicinity of numbers 1 and 2 tanks. The leakage was slowed by the divers hammering in large wooden wedges. A senior Shell superintendent arrived from London and arrangements were made to move Vibex to Montreal, to discharge the remaining cargo, clean and gas free and then return to dry dock in Quebec, the only one nearby capable of accommodating her, the next being in New York. We quietly hoped it would be New York!

Once it was clear that the wedges were reducing the inflow to a level easily handled by the pumps, which transferred incoming water to an empty tank, we proceeded slowly up the St Lawrence to a discharge berth at a refinery downriver from Montreal. When empty, Vibex was gas freed and placed at a ship repair berth closer to the city. There, with the ship trimmed well by the stern to minimise the inflow, steel boxes were built around the hole and cracks, the wedges being left in place, which were then filled with concrete. A Certificate of Seaworthiness was issued and it wasn't long before we were heading down river, relieved because winter was making itself felt and we didn't want to be trapped in the river when it was closed because of ice. Priority work meant that the Quebec dry dock was not available and we were instructed to proceed to Curacao, rather than New York. Passing through Lac Saint-Pierre between Montreal and Quebec we loaded several thousand tonnes of fresh water for discharge at the Curacao refinery.

While in Montreal we were able to have a good look at the city and also attended an ice-hockey game one evening. It was an enjoyable, interesting stay, although we felt the cold.

Several days later after clearing the St Lawrence, in the vicinity of Bermuda, with Vibex pitching in a long heavy swell during an afternoon watch, one of the cadets - they were responsible for

regular checking of soundings and ullages - reported water in No 4 Centre tank, which should have been empty. It appeared that another crack had opened. Fortunately the ship's pumps were easily able to handle the inflow. At Curacao a cement box was placed over the crack. We then made several short voyages carrying black oil from Punta Cardon at the entrance to Lake Maracaibo in Venezuela to the Curacao refinery, before loading a full cargo at Mamonal, just inside the lake entrance, for Rotterdam.

A memorable incident occurred while we were passing St Catherine's Lighthouse on the Isle of Wight on our way up the English Channel. Near St Catherine's we were able to speak to families by telephone, so we each took a turn while within range. The Master, of course, also spoke to Shell in London. I spoke to my fiancé Valerie who told me her friendly Shell superintendent in London had advised that Vibex would probably make another voyage to the Caribbean for a cargo for Rotterdam prior to Christmas. The Master and Chief Officer remained on the bridge chatting for quite a while. It was my watch and there was a lot of traffic. They included me in the conversation. The Chief Officer commented on the likelihood of us returning to the Caribbean, to which, without thinking, I said "My girlfriend has just told me we are ...", to which the Master said rather indignantly "Your bloody girlfriend! Now we get advice through the 3/O's girlfriend!" I was relieved when he smiled at me when he returned to the bridge later.

The next voyage was an uneventful one to Curacao, Lake Maracaibo and Cartagena. My leave was overdue, so I was advised to sign off on arrival in Rotterdam and on 23 December 1961 arrived in Harwich on the ferry from the Hook of Holland. Instead of returning to sea with Shell, I studied for the Master's Certificate of Competency at the Warsash School of Navigation on Southampton Water. I advised Shell that I wished to study for the Extra Master's Certificate at Warsash and Shell kindly released me from my contract, with an invitation to return to their employment when I'd completed my studies. I passed the Extra Master's examination in July 1963. While studying I'd also worked as a part time teacher, so I then joined the School as a full-time faculty member.

**By Rod Short**





## An Insight into Recent Collisions

### Narration

The following was the observation made by the USN Comprehensive Review of recent surface force incidents, 26 October 2017. It is a very transparent and honest appraisal. (go to [http://www.navy.mil/submit/display.asp?story\\_id=103130](http://www.navy.mil/submit/display.asp?story_id=103130))

“In the recent incidents, U.S. Navy ships sustained catastrophic flooding, loss of critical systems, and 17 Sailors were killed. Yet, in periods of chaos and extreme conditions, Sailors rushed in to take emergency actions to save the ship, their shipmates, and restore critical systems. This does not happen without effective training, proficiency, discipline and toughness.

In each incident, there were fundamental failures to responsibly plan, prepare and execute ship activities to avoid undue operational risk. These ships failed as a team to use available information to build and sustain situational awareness on the Bridge and prevent hazardous conditions from developing. Moreover, leaders and teams failed as maritime professionals by not adhering to safe navigational practices.

Further, the recent series of mishaps revealed weaknesses in the command structures in-place to oversee readiness and manage operational risk for forces forward deployed in Japan. In each of the four mishaps there were decisions at headquarters that stemmed from a culturally engrained “can do” attitude, and an unrecognized accumulation of risk that resulted in ships not ready to safely operate at sea.”

Similar conditions would no doubt be also the case for the merchant ships involved in the collisions. Each reader should carefully read the full report and identify where the weaknesses and strengths are on their own ships and companies they serve.

It is understood that Navies of the world run very tight ships and the structure of command and practice calls upon every member to work in teams that are effective, efficient and with precision that no merchant ship could possibly emulate. Commercial shipping doesn't have the human resources and are not trained in the same manner as the Navy but must attain similar performance outcomes in skill-sets for teamwork in navigation, seamanship, watchkeeping and discipline. Yet the recent spate of events appeared to have failings.

This short article is not pointing fingers at any one but to draw attention to the very basic fundamentals called upon us that seem to have deserted current day work place outcomes. Collisions do not occur without human involvement. In all incidents, this was the case. Where is maritime education and training, MET, at this time and is MET working sufficiently for developing,

training and sustaining consistent competence in our profession?

Each collision involved a merchant ship. One begins to wonder why the merchant ship allowed the situation to develop. Being less manoeuvrable, the merchant ship was perhaps confident that the naval ship would take sufficient action to avoid a close quarters situation, or was it just complacency?

I highlight below the basic recommendations for officers' individual training that would resonate with officers serving on merchant ships:

1. Create an objective, standardized assessment program to periodically assess individual seamanship and navigation skills over the course of an Officer's career.
2. Improve seamanship, navigation and individual skills training for Officer candidates (cadets), Officers, and other key seagoing personnel
3. Improve Operational Risk Management training and education at all MET institutions. This competency is either missing or inadequately described in the STCW convention and should be incorporated.

### Reflections

We are at a critical turning point in MET. Are officers getting the right kind of development and training that will sustain the test and trials of time. As fleet modernisation and digital disruptions cause anxiety in the industry,

- Will our officers be sufficiently competent to professionally perform to the standards laid down in accordance with the STCW convention?
- Have we failed as MET institutions to deliver outcomes based education and training and assess competency to the performance standards as outcomes?
- With the coming of autonomous ships, have we planned in advance the changes required to develop and train seafarers to perform sufficiently and consistently with work in a new challenging environment?
- Some difficult questions to answer but its not the first time. Nor will it be the last. It's not too soon or early to ask.



By

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# 2017 World Ocean Congress for Qingdao Forum

**Theme:** Innovation Tech as a Driver to Promote the Blue Economy  
**Time:** November 30 - December 1, 2017  
**Venue:** Hilton Qingdao Golden Beach, China

## Brief Introduction

The 2017 World Ocean Congress for Qingdao Forum (hereinafter referred to as "the Conference") will be held at Hilton Qingdao Golden Beach, Qingdao, China on November 30, 2017. With the theme of "Innovation Tech as a Driver to Promote the Blue Economy", the conference is a high-level signature event hosted by China Association of Oceanic Engineering, Information Research Center of International Talent SAFEA, China Institute of Navigation, China Fisheries Association and China Council for the Promotion of International Trade Qingdao Sub-Council. BIT Group Global Ltd. is the official operating organization to host the event together with other relevant organizations.

Valuable input and recommendations will be highly appreciated as we jointly explore new ways to bring into full play Qingdao's pronounced advantages in science & technology, education and human resources, further develop an innovation-oriented blue economy with new technologies, new industries, new business types and new models at the core, and play a better role by leveraging innovation as a driver for development.

## About the Theme of 2017

The 2017 World Ocean Congress for Qingdao Forum will be a gathering of great minds from China and abroad where we solicit relevant experience and recommendations for the government's decision-making on the development trend and ocean strategic positioning of Qingdao in the new phase according to the overall requirement on the city set by CPC Central Committee, CPC Shandong Provincial Committee and the Provincial Government.

The theme of this year's conference is: "Innovation Tech as a Driver to Promote the Blue Economy".

It is an important strategic move to develop the blue economy of Qingdao as part of the Maritime Silk Road Economic Belt that CPC Shandong Provincial Committee and the Provincial Government carefully laid out for the future growth of the Province.

Qingdao, as Shandong's coastal city, is well placed to play a central part in China's maritime plans, and in turn, the global economy. As the starting point for the eastern route of the 21<sup>st</sup> Maritime Silk Road, the coastal city of Qingdao in Shandong province has a prime position in the new Eurasia land bridge, and is a strategic pivot point for China's maritime collaboration. In the field of ocean related researches, 69% of Chinese maritime experts are in Qingdao, and major national research projects tend to focus on Qingdao.

On June 3<sup>rd</sup>, 2014, Qingdao West Coast New Area was officially approved as the ninth state-level new district by the State Council of China. It is the first state-level new district approved after the issue of "Approval Rules on Approval Rules on New District Establishment". The development orientation of the new area is One Theme, Two Strategies and Three Major Tasks. One theme refers to the theme of marine economic development; Two Strategies indicates the undertaking of the maritime power

strategy and the military and civilian integration strategy, and Three Major Tasks means taking the lead in the implementation of maritime power strategy, the Shandong province's opening up and Qingdao's innovative development.

## About 2017 World Ocean Congress for Qingdao Forum

The 2017 World Ocean Congress for Qingdao Forum will be held in November annually with around 200 participants from different countries and regions worldwide, honoring its name by being truly international. It is a one-day event focusing on priority areas concerning blue economic development and tech-innovation. This year's conference will include keynote speeches and open interaction. The Keynote Forum will be followed by themed presentations from domestic and international speakers and open discussions. Based on the chosen topics, the experts, scholars and business leaders worldwide will engage in a dialogue about Qingdao's blue economic development.

Fifty renowned experts and scholars in relevant fields and representatives from well-known institutions and enterprises, both at home and abroad will be invited to be the VIP guests, to share the experience and practices of their own countries or regions and to discuss such topics as how to leverage the overall strengths of Qingdao as a hub, how to foster leading sectors, how to improve Qingdao's competitiveness, how to build sound platforms for an open economy, and how to bring innovation to the management system.

## Congress Schedule

Date	Time	Activity
November 29, 2017 (Wednesday)	09:00-22:00	Full Day Registration
November 30, 2017 (Thursday)	09:00-09:30	VIP Meeting
	09:30-10:00	Opening Ceremony
	10:00-12:00	Keynote Speech
	12:00-13:00	Lunch
	13:30-14:30	Development and Cooperation of Sustainable Blue Economy
	14:30-15:30	Optimization and Upgrading of Traditional Industries
	15:30-15:40	Coffee Break
	15:40-16:40	Development and Opportunity of Emerging Industries
November 30, 2017 (Thursday)	16:40-17:40	Talent Strategy of Science and Technological Innovation
	18:00-20:00	Welcome Banquet
December 1, 2017 (Friday)	09:00-16:00	Local Tour

Contact Us

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## China's First Smart Ship Presented With LR Cyber-Enabled Ship Descriptive Notes

A special ceremony was held this week as part of Marintec China 2017, in which the first China smart ship was presented with LR cyber-enabled ship descriptive notes. The vessel, Great Intelligence, was designed by Shanghai Merchant Ship Design and Research Institute (SDARI) and built at Guangzhou Wenchong Shipyard Co., Ltd (GWS), a subsidiary of China State Shipbuilding Corporation (CSSC). Along with LR, System Engineering research Institute (SERI) and China Class Society (CCS) were also involved in this project.

Great Intelligence, a 38,800 dwt modified version of the Green Dolphin fuel-efficient Bulk Carrier concept, is the pilot smart ship project within China. LR's latest CES descriptive notes will be assigned to the project and the latest requirements are applied to this ship. The vessel achieved LR's CES descriptive notes – Cyber AL2 Safe (Navigation, Propulsion, Steering), Cyber AL2 Maintain (M/E, A/E, Boiler, Shaft) and Cyber AL2 Perform (Energy Management).



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Nick Brown, LR Marine & Offshore Director said: "LR is extremely pleased to be presenting this first smart ship in China with our latest cyber-enabled ship descriptive notes. It is a true landmark for all parties involved and another step forward in our digital journey as an industry as well as a milestone for smart shipping in China. We are very proud to be helping our clients build more autonomous ships that are safer, more efficient and energy saving."

Wang Yi, Vice General Manager, CSSC Huangpu Wenchong Shipbuilding Company, commented: "Huangpu Wenchong shipyard will continue to work on the deep development of smart ship and contribute more to the shipping industry, we wish a bright future for the Great Intelligence and believe she will create miracles for the operating company and shipowner."

Li Xin, Innovation Centre Smart Ship Project Team Vice Director of SDARI, said: "SDARI has been making effort to design ships that are safe, economic and efficient. Great Intelligence is one of those. We redesigned the ship as a digital ship, we didn't just apply the smart systems. After the delivery, it will be an example what a smart ship is and make the shipping safer, more economic and more efficient."

Qiu Bohua, Director, CSSC Systems Engineering Research Institute, Oceanic Intelligent Technology Innovation Centre, commented: "The Ship Operation and Maintenance System (SOMS) utilises advanced sensing technology to build the ship's network. Moreover, SOMS builds the brain based on intelligent technologies such as machine learning. Finally, SOMS realises the intelligent application such as energy efficiency management system and health management system."

LR is a leading player in the safe adoption of digital technologies within the marine and offshore sector, and has pioneered a 'total-systems' approach. In February 2016, LR issued the first guidance on cyber-enabled ships: 'Deploying Information and Communications Technology in Shipping – Lloyd's Register's Approach to Assurance'. This identified the elements that constitute a cyber-enabled ship and the activities that need to take place to ensure that cyber technology does not introduce a safety risk, effectively providing the industry with a route map to understanding the implications of digital technology. This was followed with the introduction of the industry's first ShipRight procedure, which details LR's framework for accepting cyber technology.

Factory acceptance and sea trial tests for the Great Intelligence's smart system took place last month and LR is satisfied that the smart system meets requirements. The following functions are included within the smart system onboard the Great Intelligence:

1. Ship Operation and Maintenance System (SOMS) Health Management – The SOMS Health Management System monitors the ship's main equipment operational parameters. This information can then be used to support decisions on the actions to be taken.
2. Ship Operation and Maintenance System (SOMS) Energy Efficiency Management – The SOMS Energy Efficiency Management System provides energy efficiency monitoring, analytics and optimisation (for example energy consumption during the voyage, voyage parameters and ship condition for energy optimisation), energy efficiency historical data analysis, energy efficiency management (for example fuel and emissions control) and decision-making support.
3. Ship Operation and Maintenance System (SOMS) Intelligent Integration Platform – The Intelligent Integration Platform (IIP) is the core of the smart ship intelligence, integrating the data from the Energy efficiency management system and the Health management system. This platform provides the functions of data management, analysis and forecasting. The IIP integrates data from the different systems to provide end-user support.
4. Intelligent Navigation System – The Intelligent Navigation System is intended to augment existing vessel's systems and not to replace or impact existing vessel safety systems. Data from ship and shore-based service stations is collected and analysed against baseline ship's route information in order to identify opportunities for route optimisation, for example the alteration of the ship's route to avoid adverse meteorological conditions, such as crossing typhoon; or the modification of the route to avoid identified obstacles. The Intelligent Navigation System also provides smart functions such as ship route optimisation to reach the destination in shortest time, with minimal fuel consumption, with the most comfortable or most economic voyage. It should be noted that actions taken in response to any information provided by the Intelligent Navigation System shall be by human.

LR's revised cyber-enabled ship (CES) ShipRight procedure was also launched at Marintec. It has been updated using lessons learnt from LR's recent projects working with key clients such as Rolls-Royce, CSSC and Synergy Marine, as well as through lessons learnt by working with academic and industry partners at QinetiQ, the University of Southampton and the National Oceanography Centre, to name a few. The important update includes three new descriptive notes, designed to give recognition to the early adopters and innovators in connected assets on ships.

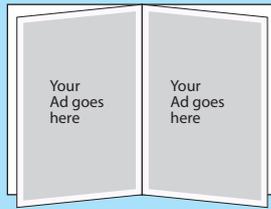
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