

# NAVIGATOR

THE

Inspiring professionalism in marine navigators

FREE



# S-Mode

Standardising navigation displays – have your say



A free publication by **The Nautical Institute** in association with the **Royal Institute of Navigation**



## Maintaining standards

Imagine joining a ship, going to the bridge and finding a navigation system (ECDIS, Radar...) that you're unfamiliar with. I'm sure you can – and probably have already done so. You struggle to find the key operations you need to stand a competent and confident watch. It is hard to acquire a target, to use EBLs and VRMs or know where to look for CPA/ TCPA, never mind set up parallel indexing or plot manual lines of position.

These design challenges cause frequent complaints from both mariners and trainers. If there was just one major manufacturer we might not have this challenge. However, a study a few years ago identified up to 35 different manufacturers selling ECDIS, each one producing the system that they feel is the best and easiest to use.

The Nautical Institute (NI), International Association of Institutes of Navigation (IAIN) and many others have proposed that the IMO should agree a single set of

guidelines for manufacturers to use when designing navigation systems.

Our proposal is for an S-Mode, or Standard Mode of operation, to be the same across all manufacturers at a basic level, although more specialist modes

**THIS IS YOUR CHANCE TO SHAPE THE FUTURE OF NAVIGATION SYSTEMS. THERE ARE NO WRONG ANSWERS**

would also be available. Mariners would need less time to become familiar with the basics of a navigation system. They would be more competent and confident while standing navigation watches, improving safety and environmental protection.

This standard interface has to suit the needs of the people who use it – the

seafarers. So what should standard interface look like? What makes a navigation system easy or difficult to use, and why? Thanks to the assistance and support of more than 1,000 volunteers, 100,000 copies of each issue of *The Navigator* go out to ships around the world to be read by around 400,000 navigating officers. We would like to invite every single one of our readers to visit our website at [www.surveymonkey.com/r/Nav-Funct](http://www.surveymonkey.com/r/Nav-Funct) to take a short survey about what S-Mode should look like.

This is your chance to shape the future of navigation systems. There are no wrong answers. The Nautical Institute simply wants to present the IMO and the wider industry with feedback from as many mariners and trainers as possible. In this issue, you can find out more about standardisation, explored from different perspectives – and about what you can do if you find yourself on a ship with an unfamiliar system. Please read it, think about it, discuss it and share it. Then join in the online survey and give us your thoughts.

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Take our S-Mode survey today and be part of an industry-wide call for change. Get your voice heard on this key issue.



202 Lambeth Road, London SE1 7LQ, UK  
Tel: +44 (0)20 7928 1351 Fax: +44 (0)20 7401 2817  
[navigator@nautinst.org](mailto:navigator@nautinst.org) [www.nautinst.org](http://www.nautinst.org)



With support from: 1 Kensington Gore, London, SW7 2AT, UK  
Tel: +44 (0)20 7591 3134 Fax: +44 (0)20 7591 3131  
[www.rin.org.uk](http://www.rin.org.uk)

#### Editorial committee:

**Editor** Emma Ward  
**Design** Phil McAllister

#### For The Nautical Institute

Bridget Hogan, Lucy Budd, Laura Nicholls,  
David Patraiko FNI, Theresa Nelson MNI

**For the RIN** Dr Andy Norris FRIN FNI

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We welcome your news, comments and opinions on the topics covered in *The Navigator*. We reserve the right to edit letters for space reasons if necessary. Views expressed by letter contributors do not necessarily reflect those held by The Nautical Institute

The previous issue of *The Navigator* about error management has reminded me to re-evaluate myself and my attitude towards errors. We navigators are well aware that we are exposed to many forms of mistake. For example, in navigation, we are mandated to use all available means to maintain safety at all times. That includes our minds and thinking – we need to be always aware of the dynamic and ever-changing condition of safety. Good error management means that to err is human, but to avoid errors is sublime.

Who knows, maybe this reminder could save our lives in future.  
**Jason Pedregosa, Second Officer,**  
**MV Warnow Whale**

I would like to acknowledge the author of the article 'Error management: teamwork', Captain Paul Armitage. He was my captain way back in 2004 in one of the Vela ships. He was a very good captain. I salute you, sir! And thank you for being a good training officer to us all.

**Joe Ventac**  
 .....  
 I'm a deck cadet and, as I am new to this career, I have so much to learn and so much knowledge to absorb. It helps that we are trained early in our career to always be safety-minded. Safety should be a lifestyle.  
**Don Carlo Gerard Pastor,**  
**MV Holstein Express**

Much of this issue of *The Navigator* looks at matters raised by the wide variety of ECDIS systems available. The Nautical Institute asked the members of its Seagoing Correspondence Group for their advice on moving between different systems. Here are some of the responses received.

“Effectively, our fleet is almost totally paperless. This does limit your ability to move around the fleet. This ship I'm on is one of 22 sisters built five years ago. The whole bridge is from one company, but the commands and view panels for the radar and the ECDIS are not the same. It's quite frustrating at times.”

“As a pilot, I encounter many different types of ECDIS without type-specific training for any of them. Some are much more 'user friendly' than others. Probably the most important bit of advice I would offer is to get familiar with the settings menu and where the various safety depths are input, as well as what each of those values does to the depths and contours that are displayed on screen. Seafarers often associate certain colours of chart background with different levels of risk, for example white meaning deeper water and darker blue less deep water. It is vital that the user knows if the system

is altering the background colour based on values input by someone else.”

“We have found a thorough on-board familiarisation checklist to be most effective. This checklist requires the newly-joining officer to demonstrate that they can perform a series of specified tasks. They demonstrate these tasks to the Navigation Officer, and then their familiarity is double-checked by the Master.”

“Even if you do a type-specific course prior to sailing with the system, you only truly figure the system out when you start using it on board. Best thing when first joining is to speak to the other officers who have been using the system, as they might have ship-specific knowledge and practical experience. It is always handy to speak to a new officer too, as they will have completed training more recently and can remind you of things that you may have forgotten due to not using them on a day-to-day basis.”

Find us on social media and let us know what you think **#NautInst**

# What is S-Mode and why does it matter?

It can be difficult to become familiar with navigation systems on ships, particularly if they are complex and you have not had experience with a similar type of equipment. This is nothing new, but it is getting more challenging. The Nautical Institute has been examining the issues surrounding these difficulties for years. Could S-Mode be the answer?

**B**ack in 1996, The Nautical Institute held the first of a series of international conferences on the theme of 'Integrated Bridge Systems'. The aim was to start an essential debate on issues concerning design, operation and training. Even though electronic charts were only in their infancy, it was becoming clear that several challenges were emerging from the growing level of technology being used on the bridge, and that The Nautical Institute was in a good position to address them.

A key issue raised at that first event was why there were so many different radar designs, and why the various knobs and buttons couldn't be standardised across all manufacturers. The manufacturers at the conference argued that they had to sell to

a wide range of customers and therefore needed to differentiate themselves on what they considered 'best design'. In addition, the sheer manufacturing challenge of moving all their knobs and buttons around would be commercially prohibitive. We recognised these issues and vowed to work closely with manufacturers to address what we could.

## The origins of S-Mode

By 2006, the average bridge was becoming equipped with increasingly sophisticated technology, and more multi-function electronic chart systems seemed inevitable. That year, the IMO adopted a new work programme called eNavigation to address the challenge of uncoordinated complex navigation systems. It was agreed that this



programme should be specifically designed to address the 'user needs' of mariners.

The future of navigation systems at that time seemed to be focused on computer displays controlled by menu choices. It occurred to The Nautical Institute's Technical Committee that a Standard, or S-Mode, could address mariners' concerns by allowing a standard mode of operation at the press of a button. At the same time, it would allow manufacturers to continue developing specialist, non-standard functions that could be used outside S-Mode.

This S-Mode concept would also address the growing challenge for training organisations of having to decide which systems to use for student training. Most training centres purchasing simulators to use for training might be able to afford one or maybe even two models from different manufacturers, but there were so many more varieties on the market. They wanted their students to be as prepared as possible to join a ship and be both competent and confident.

In 2008, The Nautical Institute published an article about the S-Mode concept in our journal, *Seaways*. We invited feedback and started working with the International Federation of Shipmasters' Association (IFSMA) to introduce the idea to the IMO under its eNavigation agenda. Our proposal centred on an S-Mode with three specific attributes:

- > A default display presented at the press of a button;
- > A standard menu structure on this display, where all essential tasks could be operated in the same way across all manufacturers;
- > A standard interface device (mouse, trackpad, joystick, etc.)

This approach was based on a series of scenarios. The first was a mariner who joined a ship with minimal time for familiarisation. They could simply press the S-Mode button and be confident in their duties. Another scenario focused on

**With over 30 different manufacturers of ECDIS alone now operating in the market, it remains difficult for mariners who may have just joined a ship to become familiar with even the key features. Not being familiar, particularly in darkness or during stressful situations such as busy ports, can be dangerous. No mariner wants to feel unprepared to use systems to make critical decisions.**

**What do you need to know to minimise the risk of this happening? One thing is to make sure you are familiar with all the key tasks that will be required – and get someone to show you if you are unsure about any of them. A list of these tasks can be found at <http://www.nautinst.org/en/forums/eccdis/index.cfm>.**

a Master wanting an officer who was new to the ship to only operate in S-Mode until they could demonstrate competence in the manufacturer's own mode.

The third situation looked at a pilot joining a ship, perhaps at night, and needing to be familiar with the functionality immediately to assist with critical decisions. Finally, we analysed the situation where a bridge team who all had different personal preferences for system setup might need to share a common system to work together effectively and efficiently.

### Making S-Mode reality

Fast forward once more to present time. The IMO has chosen the development of S-Mode as one of its top six priorities for e-navigation. IMO member countries and the wider maritime industry have been tasked to develop a set of guidelines for S-Mode by 2019.

Any mariner could, in a few minutes, scratch out on a blank piece of paper what they think S-Mode should look like. However, this approach would lead to multiple proposals and no consensus. The Nautical Institute insists that the

S-Mode guidelines should have the widest possible input from the estimated 400,000 navigating officers in the global fleet. This feedback should then result in a small number of possible solutions that will then be thoroughly tested in simulation for effectiveness before a final decision is made.

It is also important that any solution should be future-proofed (perhaps through software updates), so that S-Mode evolves with time and technology to remain effective.

Over the past ten years, many international workshops have debated the concept of S-Mode. One issue that is often raised is that the industry may be better served by greater general standardisation than by two distinctly different modes that are selected and controlled by a button (see next article). The Nautical Institute believes that we need to begin by establishing exactly *what* needs to be standardised before we decide *how* this can best be done.

To that end, we have joined up with manufacturers (via the CIRM) and the wider industry to create an online survey to establish the essential tasks that need to be standardised. See page 10 for more information.

Everyone agrees that bridge equipment needs to allow mariners to be effectively familiar with the navigation system on any ship they encounter, in as little time as possible. This will add to the navigator's confidence and improve the safety of the entire vessel.

Please discuss these issues with your bridge team, colleagues and class-mates and complete the survey. It will take a matter of minutes to fill in and will ensure that your voice is heard. This is your chance to improve your future and the safety of navigation worldwide.

[www.surveymonkey.com/r/Nav-Funct](http://www.surveymonkey.com/r/Nav-Funct)

**Author: David Patraiko FNI,  
Director of Projects at The Nautical Institute**

**THE IMO HAS TASKED MEMBER COUNTRIES AND THE WIDER MARITIME INDUSTRY TO DEVELOP A SET OF GUIDELINES FOR S-MODE BY 2019**

# Raising standards together



Users and manufacturers must work together to ensure a smooth path to S-Mode success

CIRM is an organisation representing multiple manufacturers of bridge navigation equipment. We are currently working with several organisations, including The Nautical Institute, to develop an initial set of Guidelines on S-Mode. In general, our views tend to be well-aligned with other stakeholders in the shipping industry. Yet, on the specific matter of S-Mode, our views at the CIRM differ from some of the other organisations. While we fully acknowledge that the drivers behind S-Mode are valid, we believe that alternative solutions can be developed that are more practical than one single, fully standardised mode of operation.

### Watch those analogies!

When discussing S-Mode, I've noticed that some people like to introduce analogies to other industries. But we should be cautious in doing so.

I often hear questions along the lines of: "Why can't a ship's bridge be more like an airplane cockpit?" Such questions reflect the widely-held belief that cockpit navigation systems are standardised to a much greater degree than bridge

navigation systems and are therefore easier to learn or use. They lead on to the notion that the shipping industry should try to emulate the air industry to make the mariner's life easier.

It is true that the layout and controls of cockpit navigation systems share a higher degree of standardisation than systems on a ship's bridge, and perhaps there is inspiration here for manufacturers of bridge equipment. However, the idea that cockpit systems require less rigorous training is false. The fact is, an airplane pilot who has not been properly trained and certified on the specific airframe, and on the specific systems installed, is not permitted in the navigator's seat.

Sometimes the analogy has a different focus: "Why can't the equipment on a bridge be as simple to use as the systems on a car?" It is indeed the case that an automobile's core systems are similar enough in design for a licensed driver to be able to intuitively understand how to drive any car. Again, perhaps there are some general lessons to be learned here. But to compare driving a car to navigating a ship is not helpful at all. Consider the wide range of skilled tasks that a bridge team must undertake during a full voyage – preparation, planning, monitoring, reacting, decision-making – and the array of sophisticated systems required to carry out each task. Now contrast that with the smaller number of relatively simple tasks and systems needed to drive a car.

### More standardisation, please!

So, why are bridge navigation systems produced by different manufacturers so different from each other?

SOLAS requirements adopted by IMO specify how navigational systems must perform. Beyond these 'minimum requirements', manufacturers can innovate and introduce additional features. This allows them to differentiate their products from their competitors and to serve the changing needs of their customers. I have often spoken with mariners who express fierce preference for a particular brand of equipment, simply because it suits the way they like to work.

Manufacturers are not deaf to calls for more standardisation across bridge navigation equipment. It is undeniable that

different brands of navigation system can have significant differences in design. The differences become greater as systems become increasingly feature-rich. Despite this, the introduction of type-specific familiarisation training for ECDIS systems has been unpopular in the past with many shipping companies and users.

### Finding a centre ground

It is no secret that CIRM is resistant to introducing a fully-standardised mode of operation into navigation equipment. The reasons behind our resistance are numerous. We believe that, rather than trying to standardise the full Human-Machine Interface (HMI) by committee, with inevitable negative impacts on manufacturer innovation and user preference, users and manufacturers should work together to

## MANY LESSONS CAN BE LEARNED FROM SMARTPHONES, WHERE STANDARDISED ICONS THAT CALL UP BASIC FUNCTIONS ARE EASILY RECOGNISED WHEREVER THEY ARE LOCATED ON ANY BRAND OF PHONE

increase the standardisation of navigation equipment in general.

This idea is not new, and in recent years a concerted effort has been made by bodies such as the IMO and the International Electrotechnical Commission (IEC), to increase the standardisation of navigation equipment. This has resulted in revised equipment standards that include measures such as default control settings, partial harmonisation of HMI terminology, logical grouping of data and control functions and save/recall functionality. However, the benefits of these measures will not be realised for some years, as they will in most cases only be present on new equipment, which can take decades to spread through the global fleet.

There is still a long way to go; we accept that.

CIRM acknowledges that users and customers demand better standardisation across systems and a reduction of the familiarisation training burden. We also believe that these drivers can be met by a

'middle-ground' approach. This involves identifying and standardising the essential user interface information and controls needed for core navigational tasks, and is backed up by an emphasis on robust human-centred design.

Our concept of 'S-Mode' does not relegate standardisation to a separate mode or stand-alone button. Rather, it is 'always-on'. Many lessons can be learned from smartphones, where standardised icons that call up basic functions are easily recognised wherever they are located on any brand of phone.

Standardisation of terminology can also improve the situation – that is, what a feature or function is called. Additionally, standardised grouping of information elements within logical information blocks can ensure that related

items are displayed together.

Practical measures such as these can be developed in collaboration with users, to ensure their needs are addressed. At the same time, though, this 'middle-ground' approach is not overly prescriptive. It allows manufacturers to continue innovating their products and differentiating their brands whilst making sure that they adhere to a comprehensive set of standardised requirements. Perhaps that offers us the best of both worlds?

**Author: Richard Doherty, Deputy Secretary-General, Comité International Radio-Maritime (CIRM)**

Comité International Radio-Maritime (CIRM) is the principal international association for marine electronics companies and a Non-Governmental Organisation (NGO) in consultative status to the International Maritime Organization (IMO).

# WATCHOUT

In this issue, we take a look at the issues surrounding a lack of familiarisation with different ECDIS systems. The Australian Maritime Safety Authority (AMSA) is taking a strong stance on ECDIS competency as part of Port State Control inspections, as outlined in the following report

## Know your ECDIS – or risk detention

### What is the current situation?

In Australia, there have been 87 ECDIS-related detentions since 2001. Most of the issues relate to the ISM system on board and include officers being unfamiliar with the operation of the ECDIS or units being defective, unofficial or unapproved for navigation. A recent case saw officers unable to demonstrate even the most basic functions, such as plotting a manual fix and changing the input from dead reckoning (DR) to GPS. The vessel had been operating on DR for three days without the knowledge of her navigating officers. The ECDIS, on board for training purposes, was being used as the primary means of navigating and the officers had been plotting the position displayed on it on the paper chart, which could have led to serious consequences.

### What are the issues?

Many of the issues leading to ships being detained due to unfamiliarity with the ECDIS may be attributed to training deficiencies. Lengths of on-board familiarisation have varied from one hour to over a week. The ECDIS is not just a navigational aid, it can be / often is the fundamental tool underpinning safe navigation. Therefore, adequate familiarisation is crucial. There is also a disparity between different generations of seafarers. Many officers who sailed as second officers on an ECDIS ship and who have since risen to Chief Officer or Master have tended to show a better understanding of ECDIS than Masters without this experience.

### What can be done?

ECDIS improves the safety of navigation when operated correctly. Inspections have revealed officers who are unable to identify fundamental functions on the ECDIS; poor navigator knowledge about the system's abilities and limitations; over-reliance on GNSS and problems resulting from differences in design and interface. The interface of each ECDIS can differ wildly, not only by generation but also by manufacturer. First and foremost, the company should provide appropriate support, which means ensuring that all relevant personnel have appropriate operational knowledge and understanding of the ECDIS. If an ECDIS is on board, it should be used and practised with (when not being used for navigation) to ensure familiarity. All officers should be engaged in this, and officers should not be afraid to ask questions if unsure.



**THE ECDIS IS NOT JUST A NAVIGATIONAL AID, IT CAN BE THE FUNDAMENTAL TOOL UNDERPINNING SAFE NAVIGATION. THAT MEANS ADEQUATE FAMILIARISATION IS VITALLY IMPORTANT**



If you find our accident reports useful, check out The Nautical Institute's Mariners' Alerting and Reporting Scheme (MARS). A fully searchable database of incident reports and lessons, updated every month. Seen a problem yourself? Email the editor at [mars@nautinst.org](mailto:mars@nautinst.org) and help others learn from your experience. All reports are confidential – we will never identify you or your ship.



# Swimming in the sea of knowledge

Vietnamese mariner **Vu Viet Dung** has used the training and experience he received at sea to pursue scientific studies ashore, including doctoral research into standardisation. Now, he has returned to Vietnam Maritime University, to train the next generation of seafarers

## What made you decide on following a career at sea?

I was born in Haiphong, the largest and most important seaport of Northern Vietnam. I come from a family with a longstanding seafaring tradition. My grandfather was a navy captain, all my uncles are naval officers and my father is a master mariner. I was ten years old when my father took me on board a ship for the first time, and that was the moment I decided to follow the family tradition.

## Where did you complete your training?

I entered Vietnam Maritime University as a cadet in 2007, and a year later I was sent to Ukraine to continue my education at Odessa National Maritime Academy. The government of Vietnam provided me with shipboard training on different vessels within the national merchant fleet. I started my cadet training on bulk carriers and was later assigned to the tanker fleet as a junior deck officer.

A turning point in my career followed in 2014, when I undertook postgraduate research. It was during this period that I realised my passion for knowledge and desire to achieve a deeper understanding of science. Upon graduation, facing the dilemma of choosing between the adventurous life at sea and a career in



**Name:** Vu Viet Dung

**Current position:** Associate Lecturer

**Training:** Vietnam Maritime University and Odessa National Maritime Academy

academia, I made the decision to return to Vietnam and join Vietnam Maritime University to pursue an academic career. This was by far the most important and the best decision I have ever made.

## Why did you choose to return ashore to follow an academic career?

I feel excited to be swimming in the sea of knowledge and I enjoy working with students to share the gift of wisdom with them. I feel fulfilment in being able to do

what I truly love and, at the same time, contribute to society. That said, however, my time at sea remains a very fond memory and one I shall never forget.

## What do you want to teach the next generation in particular about life at sea?

My own experiences at sea and other stories from colleagues help me paint a picture for my students of the dangerous and demanding job that mariners perform. It troubles me that, despite their tremendous contribution to the global economy and civil society, seafarers still don't receive the full recognition and appreciation that they deserve.

## What are you focusing on now, with regard to your own studies?

My wish to contribute to the wellbeing of fellow seafarers has motivated me to focus my doctoral research on maritime human factors. I am focusing largely on standardisation and how it can enhance the quality of use of marine navigation systems. The knowledge and training I have gained as a seafarer has allowed me to see things from a mariner's perspective and I hope that the outcome of my current work will help make ships a healthy, efficient, and positive work environment for future seafarers.

**MY WISH TO CONTRIBUTE TO THE WELLBEING OF FELLOW SEAFARERS HAS MOTIVATED ME TO FOCUS MY DOCTORAL RESEARCH ON MARITIME HUMAN FACTORS**



## S-Mode into the future

Dr Andy Norris, an active Fellow of the Nautical Institute and the Royal Institute of Navigation, looks at how ongoing growth in the capabilities of the digital world could affect implementation on the bridge

We are very accustomed to seeing continual improvements in our personal electronic devices, the things that they can do and how we access them. Matters are very different when it comes to bridge electronic systems. While they embrace extensive digital technology, they have yet to enter the world of fast digital communications. To date, this is simply because broadband usage has not been generally available at sea. However, the situation is rapidly changing. Satellite-provided broadband access is likely to be available on most vessels within the next few years.

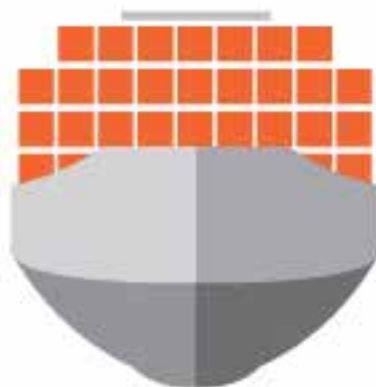
In addition to all the immediate business and personal benefits that this will bring, there is a strong possibility that it will enable an excellent implementation of the S-Mode concept. Until the introduction of ECDIS, onboard navigation equipment tended to remain in its originally installed configuration until it was replaced, perhaps after as much as 20 years of use. Bridge equipment is generally only required to meet the legislation requirements that were in place when it was originally fitted.

This has meant that users have needed to be familiar not only with many different brands of current equipment, but also with some installed systems meeting much older standards. This has greatly complicated the process of new users becoming familiar with any particular bridge installation.

ECDIS caught many owners and users by surprise, as it was the first ever navigation system to require software updates. These are needed because ECDIS systems must display all chart data correctly, including any revisions to the requirements since the original date of installation. If a system cannot be updated to display newly designated charted features, it must be replaced.



**THE DETAILS OF  
S-MODE WILL  
CONTINUE TO EVOLVE  
INTO THE FUTURE, AS  
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DEVELOPED**



### An S-Mode evolution

S-Mode is specifically directed at how the equipment is controlled and how all derived data is accessed and displayed. This is mainly governed by the installed software within the equipment. It affects just a few physical items, such as switches and rotary controls.

The details of S-Mode will continue to evolve into the future, as better ways of implementing the human interface are developed. Not least, it will ensure conformity in use of the ever-increasing data that broadband will make available. It would make no sense for S-Mode requirements to be frozen at the time of the original installation of the equipment. Future systems need to be updatable to maintain compliance with these requirements.

Of course, the software updates for equipment needed to meet future revisions of S-Mode could be automatically downloaded through a vessel's secure broadband system. The process would be initiated by an authorised ship's officer, who would have decided on a suitable update time when the vessel was not underway. The revised software could be remotely monitored via the broadband link to ensure that it has been correctly loaded.

Most importantly, before the change was implemented, all users would be required to become fully familiar with the use of the new data and/or procedures. The huge benefit would be that all vessels could be updated over a relatively short interval of time, with an internationally agreed end-date. This would ensure that S-Mode always remained common on all vessels, greatly aiding the task of bridge familiarisation for users.

NAVIGATORS OF THE FUTURE NEED YOUR VIEWS!

TAKE **10** MINUTES  
TELL US WHAT  
YOU THINK?

Instead of asking you to take 10 minutes to review what you have learned, this issue we are asking you to take 10 minutes to help shape the future of navigation by filling in the online survey at

<https://www.surveymonkey.com/r/Nav-Funct>

We are working towards a standardisation of technology long asked for by maritime technology users. Key to this is collecting input on user needs from an international pool of seafarers. It is important to us to hear from mariners around the world, and in all sectors. Please join us and take the chance to influence your workplace.

#### **Make a difference!**

In our web survey, we will ask you to mark the frequency of use of all the functions of an Integrated Navigation

System. Knowing what functions are most important will give us information that we can use to design guidelines for accessing functions and structuring menus.

We want to see the introduction of an industry-wide standard that simplifies the use of complex maritime technology. We believe this will lead to fewer errors and less frustration, not to mention save valuable time and money. It could also standardise training around the world creating a more effective and satisfied seafarer workforce.

#### **Moving forward**

The concept of S-mode as a way to move towards standardisation of navigation displays has been proposed under the agenda of the IMO e-Navigation initiative. At MSC 95, IMO recently identified that the 'Guidelines on standardized modes of operation (S-mode)' are a priority and need to be established by 2019. Let's help make it happen.

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# WIN AN IPAD

Just post a picture of you with your *Navigator* on Twitter, including the hashtag #NAVsnap, or send us a message on Facebook with your photo attached ([www.facebook.com/thenauticalinstitute](http://www.facebook.com/thenauticalinstitute)) and tell us the name of your ship or your college, if you have one. Or send us the information in an email!

## AND THE WINNER THIS ISSUE IS...

Congratulations to Florencia Sambucetti Pereira, winner of our Issue 14 NavSnap competition!

*My maritime career started as a chart corrector, so I'm pretty familiar with the use of correction tools. I am the Digital Autosupply coordinator for Captain Stephan Nedelchev, where we keep in touch with South American shipowners and keep their nautical charts and publications up to date. I use The Navigator to keep our clients updated on the latest news and I find it an interesting read.*



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