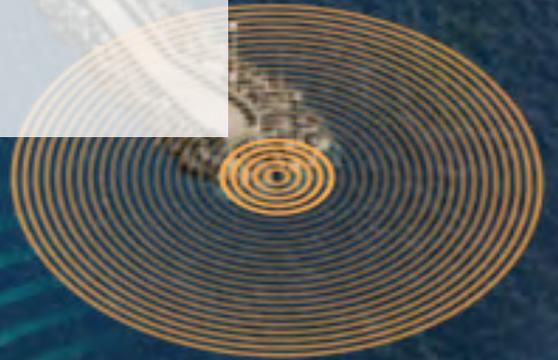
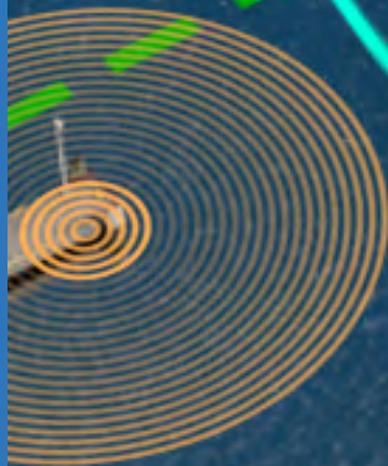
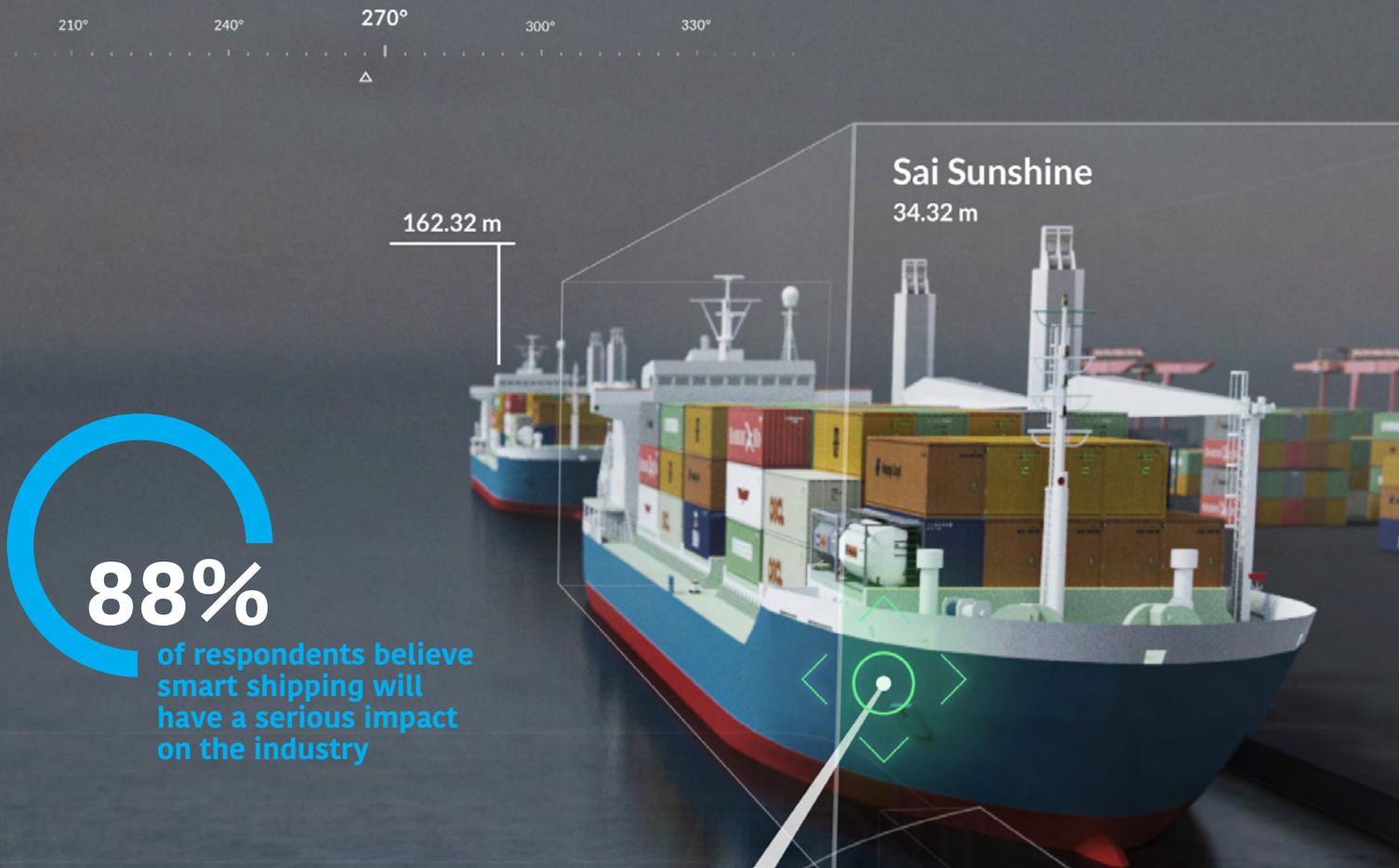


Seatrade Maritime

The smart shipping revolution

From the voices of Seatrade Maritime News



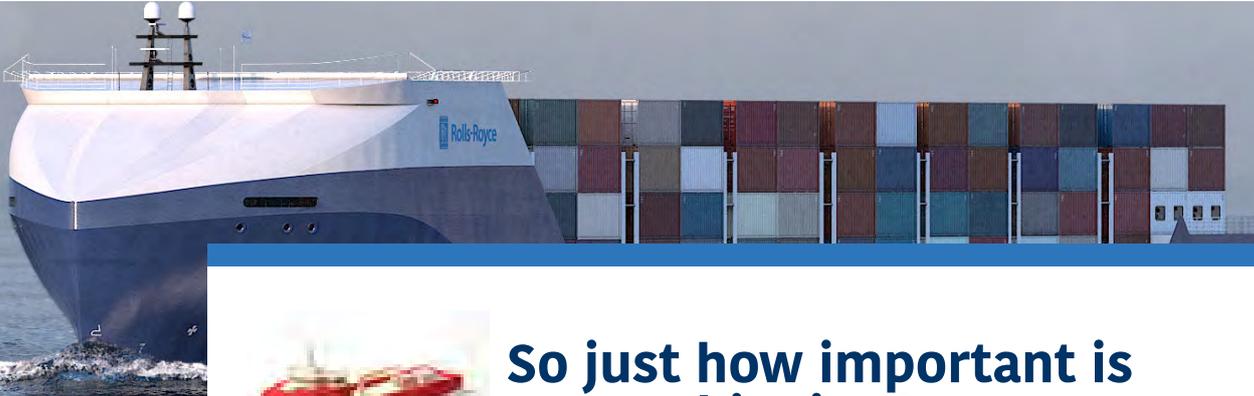


Introduction

Smart shipping is the term on everybody's lips at the moment, much as the smartphone has revolutionised the way we do many things in our daily lives, smart shipping is, we are told, going to radically alter the shipping industry. If some people are to be believed we will rapidly have an industry of autonomous vessels driven efficiently by decisions made with big data.

However, it is also a veritable minefield of buzzwords and flashy marketing videos of visions of ships of the future. But these leave the questions of what does the industry want? What is it willing to pay for and sees as cost effective? And what is really possible within technical and regulatory guidelines.

To try and understand what people in the industry really think about Smart Shipping and what they believe will be the areas most affected Seatrade Maritime News undertook a survey of its readers recently, the conclusions of which are presented in this white paper, along with related opinions from senior industry executives.



So just how important is smart shipping?

The simple question as to how important people felt was smart shipping showed that the overwhelming majority – close 88% believe there will be a serious impact on much, if not all, of the industry. Some 53.4% believed that smart shipping was extremely important and would have a major impact on the industry while a 34.9% saw it as fairly important with it set to impact many areas of the industry. A further 10% are rather more circumspect believing its impact would be slight only affecting specific areas of operation. A much smaller percentage just 1.44% expect the status quo to prevail with no impact from smart shipping.

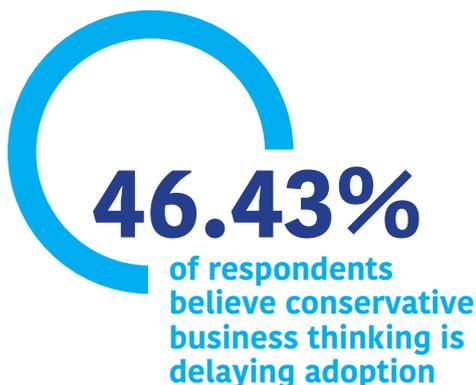


What is delaying the transformation to smart shipping?

While nearly 88% of respondents saw smart shipping as having a serious impact on most of the industry this not really reflected in the pace at which companies have been adopting smart shipping. While there are certainly some leaders in the field it has not had the sweeping disruption that some technology and supplier companies might be hoping for, or claiming it will. The top reason for this according to some 46.43% of respondents to the survey should come as little surprise – conservative business thinking. Shipping in terms of how it operates is a notoriously conservative business, something which many tech companies have found out the hard way when they have tried to introduce “revolutionary” new ways of doing business. The next reason, which

in some ways come be seen as linked, is the cost and scale of the investment required which was chosen by 24% of respondents. With owners investing over a 25 year timeline in a vessel, ensuring that they are not investing in technologies that will either become redundant or fail to take off is key a concern, particularly when budgets are as tight as they have been in recent years.

The failure to develop relevant technologies for the industry was seen as the main factor by 15.82%, and regulatory issues, which feature elsewhere in this White Paper by 13.78%



Big Data and Autonomous Ships

Two of the most talked about topics when it comes to smart shipping are autonomous ships and big data.

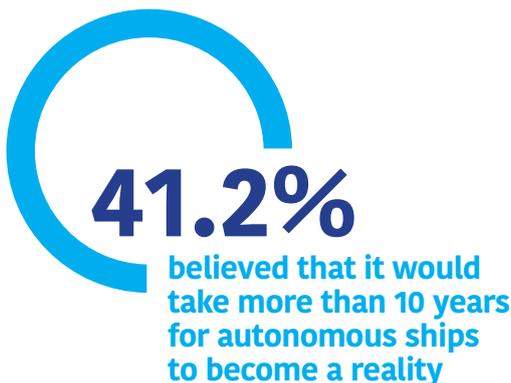


Autonomous ships

The singularly most emotive and controversial aspect of smart shipping has to be autonomous ships. Shipping is a dangerous industry and there is a shortage of senior trained crew so why not automate the ships? If you believe the likes of Rolls Royce vp Oskar Levander the days of robotic ships sailing the world's oceans with sleek hi-tech control centres staffed by humans only there to intervene if there is a problem are not far off. While the disruption argument does seem to be gaining favour it is fair to say the majority believe autonomous shipping will take some time to become a reality if at all.

In the survey 41.2% believed that it would take more than 10 years for autonomous ships to become a reality, while a further 35.1% thought it would take between five and 10 years.

The fairly cautious view would seem to match with the opportunities for autonomous shipping in the near term lying with shortsea shipping, and regular, predictable routes. A perfect example of this is the project by global fertilizer group Yara and Kongsberg Group is the Yara Birkeland which will be the world's first fully electric and autonomous container shipping due for delivery in second half 2018. It is shortsea voyages where Geir Håøy, ceo of Kongsberg Group sees the opportunity. "This is a huge opportunity for shortsea shipping, I am not so sure about the long haul it will take a while before we see fully autonomous ships going across the oceans."





Is the research into autonomous shipping valuable?

Now while autonomous shipping may be some way off becoming a reality of any scale in ocean shipping, it cannot be denied that many organisations are investing serious amounts of money into the concept and pilot projects. On the simple question as to whether research into autonomous shipping is valuable in terms of the results it provides the overwhelming majority believe that this the case. Some 79.19% of respondents believe that the R&D from autonomous shipping is valuable while just 17.26% felt that the research was not of value.

It was notable that while some respondents saw no actual benefit in unmanned or autonomous vessels in themselves the gains made in technology would have benefits for safety and efficiency of existing shipping operations. Further R&D was seen as crucial and would broaden applications, which would lead to future automation and digital integration even if not necessarily the end goal of fully autonomous or unmanned vessels.

The developments on the road to autonomous shipping are something that classification society ABS is eyeing its involvement in research into the area which includes being part of the Unmanned Cargo Ship Development Alliance.

“We see it as a process where autonomy is the target but there are a number of intermediate steps to get there. To get to autonomy you have to work on reliability and redundancy, there are a number of things that you need to fall in place to get to autonomy, so I think there will be these intermediate advances that will benefit the industry,” Kirsi Tikka, ABS evp for global marine, said recently.

A similar view has been previously expressed by Remi Eriksen, ceo of classification society DNV GL. “Many steps will be needed before fully unmanned ships can become a reality, however some sort of autonomy is also relevant and would greatly improve safety through smart position support,” he said.





What are the biggest hurdles facing autonomous shipping?

There is certainly no shortage of companies pushing the autonomous ship concept ranging from equipment manufacturers, classification societies, shipyards, and indeed some shipowners such as Mitsui OSK Lines (MOL) in Japan. However, with over 40% of respondents to our survey saying it will take over 10 years for autonomous shipping to become a reality what do they believe are the main issues facing the shift to unmanned shipping.

Topping the list of issues facing autonomous shipping was the ability of technology to handle complex conditions and navigation at sea, with some 46.9% of respondents citing this area. It is one thing for an automated vessel to cope with a calm sea state in relatively uncrowded waters, but quite a different story when it comes to dealing with extreme weather conditions and the seemingly random actions of other smaller vessels in crowded waters. It is difficult and dangerous situations where there can be an added value to the human element, which can make decisions outside of the parameters that a machine could be taught or learn to calculate within. Recently Lloyd's Register HK and Taiwan area manager James Forsdyke cited the case of the car carrier Hoegh Osaka which was deliberately grounded on the Bramble Bank in the Solent, Southampton, UK just over two years ago to save the vessel when it suddenly developed a serious list. If the vessel had not been grounded a much more serious and difficult casualty to salvage could have occurred.

The next biggest issue facing autonomous shipping was that of regulation which was cited by 19.39% of respondents. As with developments in other areas of smart technology, regulations in the maritime sphere for autonomous run short of the potential technological developments, and added to this new maritime regulations are notoriously slow to be formulated and implemented.

Autonomous shipping is now on the IMO agenda from June this year with Maritime Safety Committee will start to establish a new international legal framework for the safe operation of these vessels. "Despite some concern, it was generally agreed that the IMO needs to start its work now. There was also general agreement that the IMO must take into consideration how developments will affect the seafarers," the Danish Maritime Authority said at the time.

To extent linked to regulation is the issue of liability and insurance in the event of an accident which 14.29% saw as the to issue facing autonomous shipping. Much as with self driving cars whose fault an accident would be is very much up in the air in the case of autonomous shipping, and as to how insurers would cover and rate such a risk.

Just under 10% of respondents, 9.69% saw cost as the main issue with it being easier and less costly to employ seafarers. It is a view that not surprisingly Stephen Cotton general secretary of global union the International Transport Workers Federation agrees with. "If you look at the cost, wage cost is a very small part of operating a ship. But in reality the investment to build full autonomous ships is an issue I struggle to see quite how it will implement itself," Cotton said recently.

Meanwhile 7.14% saw remote maintenance and repair as the top issue facing autonomous shipping. Indeed some in the industry have seen a scenario which reverse that of the airline industry where engineers onboard planes were phase out but the pilots remained, with navigation becoming automated onboard ships replacing the bridge crew, but a engineering team remaining to deal with technical and maintenance issues shipboard while out on the ocean.

BIG DATA



Big data

Big data is arguably one of those topics that everybody talks about but are it would seem rather less are actually sure what it means, particularly in a maritime context. It is being posed as a transformative opportunity for the industry and a number of parties such as classification societies are putting themselves forward as a neutral party that can both be a custodian of the data and conduct analysis of it to improve operations. “We know many of our customers struggle to manage their data supply chains. Many times the users of the data do not know the origin of the data, the context in which it was born, the legal and contractual frameworks and the obligations that goes with the data,” said Remi Eriksen ceo of DNV GL speaking about the launch of its new data management platform Veracity.

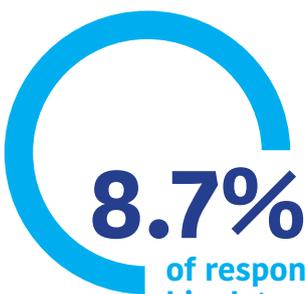
In our survey some 56.85% of respondents saw big data as having a major transformation impact on the industry, and 40.1% it as having somewhat of an impact. Just 3% saw it as having no impact.



But are companies actually utilising big data?

The survey revealed a disparity between what people believe will be the impact of big data on shipping and its current level of usage. The majority of respondents

said their companies where either not using big data or in the process of planning to an exploring opportunities. Some 37% of respondents said the companies they worked for were not using big data all while a further 25.6% were in the process of planning to use big data or exploring the opportunities it offered. Of those using big data, just 8.7% said it was a major part of operations, and 28.7% were using it some extent. So while the majority believe big data usage will transform the shipping industry in the future it still remains a relatively untapped marketplace.



of respondents said big data was a major part of operations

Smart shipping here and now

Autonomous shipping and big data are the big buzzword topics of smart shipping but clearly there is still a lot of work to be done in these areas in terms of research and development and wider industry take-up.



What is most important?

In terms of what is most important to the industry from smart shipping at the moment some 42.6% of respondents said it was optimisation of operations at sea. With companies faced with slim to non-existent profit margins depending on the sector, as well as a regulatory push for more environmentally friendly transport it is not surprising to see this top the current agenda.

Egil C. Legland, country manager of ABS Norway, stated last year: “We have to deal with the issues that owners are really looking at – managing costs, improving productivity, and creating value, as well as thinking about the future. We are taking elements of that future and bringing them together to enable new technologies to be used safely and efficiently.”

The other thing that the industry was looking for from smart shipping at this time was digitisation of processes and the customer experience. In the sector of the industry with the largest number of customers – container shipping – it has taken some 15 years for 49% of container shipping instructions to be digitised meaning that majority of bookings are still made by traditional means rather than digitally.

Dovetailing with this conclusion the sector of shipping that smart shipping was seen as most important for was container shipping according 46.19% of respondents to the survey followed by 24.1% saying it was ports and terminals.





Image taken by Ahmed Chowel

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