PODCAST

# Technologies for greener shipping

## ABB Decoded

Eero Lehtovaara, head of regulatory and public affairs, ABB Marine & Ports, shares his insights on how digitalization and automation can support shipping to become cleaner, safer and more predictable.

**Reiner Schoenrock**: Hello! And welcome to a new episode of ABB Decoded – the podcast that tries to press pause on our fast-moving lives and shine a light on the technology and trends that are reshaping our world.

I'm your host Reiner Schoenrock and in this episode we'll be discussing new technologies for greener shipping, this year's theme of the World Maritime Day. And I'm sure we will not just talk about increasing engine efficiency, alternative fuels like hydrogen or electricity. We will talk about how artificial intelligence can help create autonomous solutions supporting greener shipping, and we have to tackle technology as well as regulations. To further elaborate on that topic, I met with Eero Lehtovaara, head of regulatory and public affairs, Marine and Ports at ABB. Hello, Eero. Nice to meet you.

**Eero Lehtovaara:**

Hello, Reiner, good to see you and hear you again.

**Reiner:**

Eero, in a nutshell, what do you do at ABB?

**Eero**:

Good question. I don't know how to answer that, in a nutshell. But you could say that what I'm really looking at is to align the ABB strategies when it comes to the maritime world with the regulatory framework. And to put it into context, I think it's important to understand that in the international maritime world, more than 80% of everything that we sell to our customers need to be approved by classification societies. And that makes the regulatory framework a key topic for us to be able to do our business. And that's, kind of, where most of the focus of what I'm doing is.

**Reiner:**

So then you are involved in technology, you are involved in regulations, and you are certainly also involved in digitalization. So a lot of technology. Well technology usually moves the needle in the form of waves, what would you say was the last technical-induced change in the marine business?

**Eero**:

I think that is a good question and a very difficult one in the sense that people tend to want to recognize a revolution or massive change in the industry. But in my opinion, I don't think that's what's happening. I

think that there's a continuous evolution of things coming up and which one of them are, more or less, influential or decisive for the industry direction is very difficult to say.

You could name a number of them. Digitalization, for sure is something that is going on. But you could also say that new technologies has, well, we have had them already 30, 40 years. It's just now that we are starting more and more to see the impact of that. And then we're also seeing that when technology is evolving, we find more and more opportunities to work with that and be more efficient, be more safe, and develop our products in directions that were not possible 20, 30, 40 years ago.

**Reiner:**

Thank you, Eero. Let's talk about those evolving technologies. Which technology is going to be the next big thing for the marine industry? I assume this industry is aiming for higher efficiency, reliability, predictability and utilizing more information gained from digital technologies, right?

**Eero**:

Yep, you just said it. But it's interesting to see that maybe 80% of all the discussion that is going on in the industry is about alternative fuels, and it's kind of waiting for a miracle that hopefully comes. But in the meantime, energy efficiency, increased use of electricity in its various forms into the maritime industry, and as you said, digitalization, brings forward the possibility for us to use data and information to further enhance the capabilities of the technologies that we already have. And I would say that really using information to the benefit of all the stakeholders is maybe the one of the biggest things that is still to come. I would say that we all acknowledge that this is coming, but nobody has really a very clear picture on how it's going to be done.

**Reiner:**

That is what we also want to reach with this podcast-- to draw a clearer picture. And many people just don't know how important shipping is. Some estimates show that shipping is going to increase significantly over the next few years. And it is already the most important method of transportation. But at the same time shipping is blamed to be a polluter, while as a matter of fact, shipping is the most environmental-friendly form of transport. So what can the shipping industry do to deliver more goods and to further reduce pollution at the same time?

**Eero**:

Oh, boy, that's Pandora's box there. I think that one thing to always...and I think it's good that you brought it up. What I would like to emphasis is that really, the maritime transport, the waterborne transport is essential for this globe to work. There is a direct relation with the world population, the world GDP, and, and the world trade. The world trade, depending on whether we're talking about mass or value, 70 to 85% of everything that goes on in the world goes by shipping. So without shipping, nothing really happens. And shipping already is by far the most energy-efficient way of transporting goods and the most sustainable way of doing that.

We also need to acknowledge that it's not only the absolute consumption, but also the transport efficiency, the ton-mile efficiency that we can come up with is so much better than anything else. Sometimes I, as a former mariner, and working with the maritime industry, I feel that we are kind of blamed unnecessarily hard for the environmental impact. But that obviously doesn't mean that we shouldn't do as an industry our best to improve that. And that's very much what we at ABB Marine are doing, on ports, also electrifying and making the whole logistics chain much more efficient. And part of that is not only electrification, but then also digitalization using the information that we get from the whole setup to really assess how to make it more efficient and in the maritime context, always also safer.

**Reiner:**

Thank you, Eero. So you talked about electrification, you talked about digitalization, but certainly alternative fuels are also important or getting more and more important. So there are hydrogen, e-fuels, electricity from batteries. How do you see the future of these alternatives to fossil fuels?

**Eero**:

I think that one thing is clear that the expectation is that we will get rid of fossil fuels as much as possible. What new solution is going to be may be a more tricky question. I don't believe that there will be a kind of a silver bullet that will fit all. We will have and we will face a large variety of solutions. And definitely batteries is going to be one of the mix. The debate is really tough between hydrogen and ammonia. Methanol is coming in from the side. There's more and more discussion about nuclear power plants. Also, fusion is something that has been discussed quite a lot. But there will be so many different trades and also sectors and ship types that will just not be able to use all the same solutions. I think that it will be more split than ever.

And a lot of these new solutions will require a higher level of data management in order to work. And some of them will require supportive systems to ramp up, for instance, with the help of batteries, and so on. Well, I think that the way I see it, there's quite a lot of possibilities that we have in ABB to capture that. But as we all know, we don't really work with the alternative fuels, and then the fuels in general. So it's what's happening after the prime mover that is really where we are operating, and then there, I think that whatever is coming out of the mill, we can improve that with our technologies. But which one is going to be kind of the winning one is nearly impossible to say at the moment.

**Reiner:**

So there's a lot of cooking in the R&D labs, then. Thank you, Eero. You just mentioned something like the high-level data management. It brings me to my next question, because in the automotive industry we see many discussions lately about self-driving vehicles, as they might be safer and reach highest efficiencies. Could something like this be done for shipping as well?

**Eero**:

Yes, and it is done as we speak. However, there's kind of two different aspects of that. One is that the increased efficiency of the ship as a system is something that is underway. When we're looking at the logistics chain, the supply chain of the maritime industry, we really need to look at it as from the sending port and the ship and the receiving port and how they work together. The consumption of a ship is very much dependent on the speed that it operates on. And what we see today is that a large number of the ships in the fleet are using way too high speeds to get to the next port, and then they wait a day or a week or more at the next port. And that means that the fuel consumption was way too high, completely unnecessarily.

So that kind of information management within the logistics chain, but also how to operate the ship together with, especially with hybrid solutions that we can provide like batteries and shaft generators, how they work together, to improve the efficiency of the individual ship. On top of that, everything that comes in the overall management of the big picture is really reliant on data. And how we manage that data and how we process that data, and how the shipping companies are using that in their systems is something that's very much going on at the moment. And very much also dependent on the regulatory framework on how we make that work, so that it's also safe, and we get clear definitions on like one of the key questions, "Who is in charge? Who makes the decisions?" So yes, it's an extremely interesting phase that we're living in the maritime industry at the moment.

**Reiner:**

Yeah, absolutely right. Recently, we all learned about the challenges in global delivery chains, harbors are swamped with containers, and not enough personnel is available to load or unload the ships. And actually some 80 to 90% of world trade is transported by the shipping industry today. So what can be done to improve the situation sooner than later?

**Eero**:

A lot. I think that there's a lot of low hanging fruits. Looking at it from an ABB perspective, I will say that the technology is not really the issue here. I think that, especially our division, Marine and Ports, can provide so much technology that would immediately improve the efficiency of the logistic chain. But one of

the key problems is really in data sharing and how do we get that information to work for the benefit of the industry. And there's so many different stakeholders, and then we have this traditional dilemma of one part needing to do the investment that the other party is going to benefit from, which means that not only the technology, but the business models of data sharing, the validation of data and how do we see that there's a confirmation from a third party, not only within the qualities of the raw data, but also the processed data and it's quality levels, is something that everyone is fully aware of, but that we haven't really, and by we, I mean, the industry in general, found the perfect solution on how to do that.

But it is estimated that just by knowing all the things or making use of all the things that we are knowing could improve the efficiency of the whole maritime industry by up to 15%. I don't know if that's even a verifiable number. But, for sure, when we're looking at how much more efficient we could be by using data in the right way, I think that that's one of the things that we need to solve very fast and not wait for anything else to come and save us.

**Reiner:**

Thank you, Eero. So, that sounds like there are many low hanging fruits with very high potential to improve the situation. Now, what role do the regulators play here, and how important is their, well, responsibility, and what can they do to improve the situation?

**Eero**:

It's the old situation where we could say that the drivers are all ready. Alternatively, money or then somebody is forcing you to do that. So the old carrot-and-stick. And the regulators, they do have a role in this. Already today, when it comes to some of the products that we are working with in our unit is they are not supported by the current regulations. A simple example from one of the many is that we have created something that we call the electronic lookout, which could be used on ships to improve the ship safety and through that the operational efficiency. But current regulations require a human to look out from the bridge and see what's going on around the ship, as an example.

So not only that, but we could see that if the regulatory bodies could force us to share some of the data that we are using and producing, could be one of the roles that they have. Obviously, we are quite concerned about the rules and definitions on what is data, how do we share it, to whom, under what constraints, how do we see the confidentiality and design within the data so that we are not giving out something that is proprietary to us? There's a number of questions that needs to be answered, that we're all working on, and we'll see when that kind of bears fruit.

**Reiner:**

Thank you, Eero. I guess we will certainly follow-up with this discussion at a later point in time to see what moves the needle and where did we see any improvements. I'm at the end of my list of questions. Is there a question I forgot to ask? Would you like to address the audience with an additional statement? What is important for you right now?

**Eero**:

The thing that I feel is very much something that is needed both between the industry and the regulators is a very open and a very dynamic dialogue. We need to have a common understanding as an industry as a whole, including the regulators, on what technologies can do, what technologies are coming and where do we find the gaps in the regulatory setup where we for sure, already now, see that they are topics that kind of fall outside the current regulations and this is something that we need to work together with.

**Reiner:**

Thank you, Eero, for all your insights and compelling examples. Now, we all better understand what is at stake, how important and omnipresent transport via ships is, and how the marine industry can become more sustainable, reliable, and predictable. All this is well aligned with ABB's purpose to transform industries to achieve the world's sustainability goals through leading technology. And if you, dear listener

did enjoy this episode of ABB Decoded, why not like, share, or subscribe wherever you get your podcasts? Until next time, goodbye.