

Stories

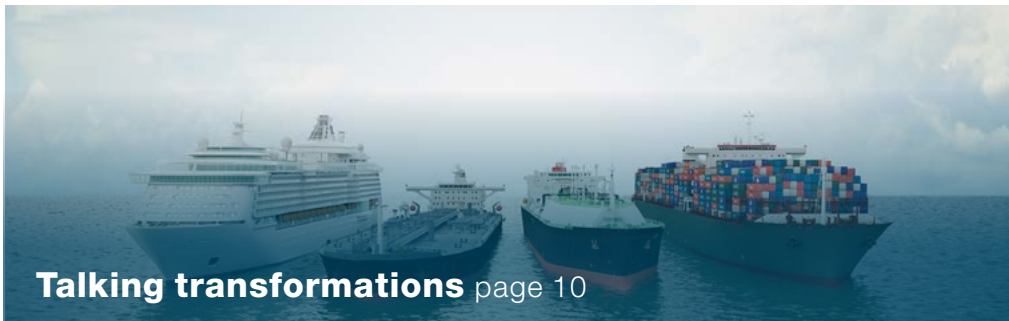
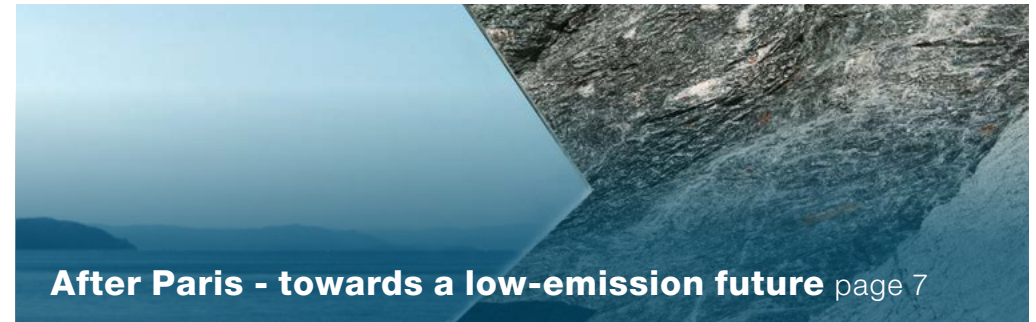
New pathways

Wärtsilä Corporation Stories 2016

Wärtsilä Corporation


Stories 2016

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Solar flares

In April 2016, Wärtsilä announced its entry into the solar energy business, launching utility-scale solar photovoltaic (PV) solutions. Javier Cavada, President of Energy Solutions, discusses this exciting turn of events and its implications for the industry.



“This is a natural evolution of our Smart Power Generation concept.”

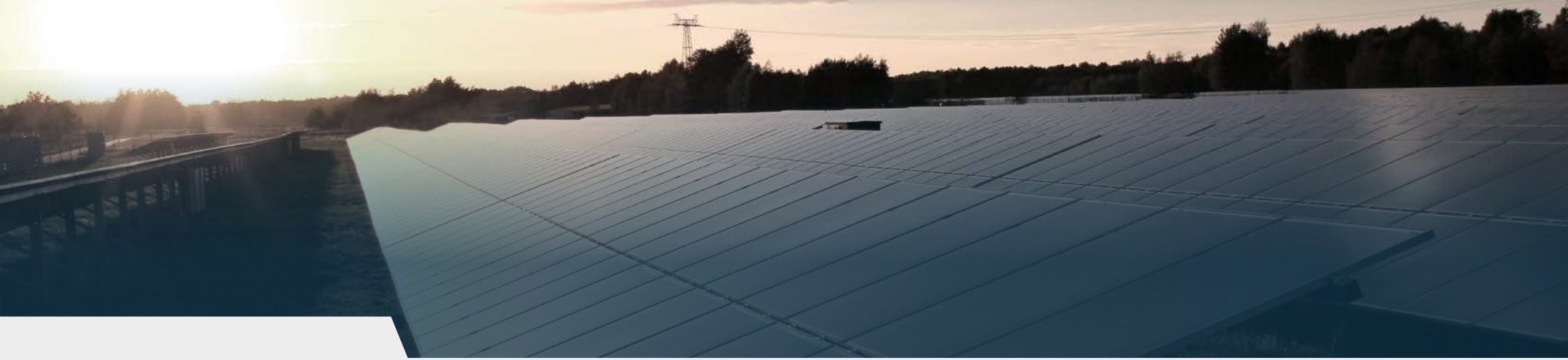
When breaking new ground, it's important to maintain perspective, counsels Javier Cavada. “These developments in solar sound like big news for the company, and that's certainly the case, but it's worth pointing out that this is a natural evolution of our Smart Power Generation concept,” he emphasises.

For some time now, Wärtsilä has been preaching the benefits of Smart Power Generation, an innovative system that makes use of the company's fast-responding, efficient, and fuel-flexible power plants to support the integration of renewables and maximise customer returns. With this philosophy of transforming the unpredictability of the sun and wind as power sources, for example, into easily handled provisions, the company is very well placed indeed to deal with the various needs of its customers and help them access more energy-efficient, low-emission platforms.

“This concept has been the key ingredient we bring to the market to enable customers to integrate renewables into their supply,” Cavada continues. “So in Smart Power Generation we talk about flexibility, stability and very fast ramp-up and ramp-down, stabilising the erratic supply you get from wind and solar. Here, with these PV solutions, we have the next step: Wärtsilä goes solar.”

THE SUN'S GRAVITY

As the Smart Power Generation message has filtered down into the market consciousness, demand began to grow for Wärtsilä to play a more active role in renewable energy. Cavada is careful to characterise this first and foremost as a strong ‘pull’ from customers. “The idea for this model came up repeatedly in several conversations with customers. They understood that we have everything in place to create hybrid solutions including solar with complete power system integration.



This means the turnkey capability, abundant local presence in the main solar markets, our workshops and global service network – in fact, the entire picture.”

The Energy Solutions leader confides that a wide spectrum of opportunities of this nature have been discussed internally, with this strategic development just one scenario of many. Why then solar technology, rather than say: wind turbines?

“After much discussion and deep analysis, finally we saw that as solar solutions are becoming more affordable, the market for these is growing tremendously today and is a place where Wärtsilä has to be positioned,” Cavada points out. “We are talking about four-times growth in the coming five years. That’s the biggest growth in any sector of power production globally, and it’s true in every region, with wind power normally the second.”

In solar, Cavada observes, the market is not as mature in terms of technology as wind power. In the latter area, there are very clear market players dominating the proceedings, whereas in solar, there is no one single agent who can bring the various supply strands together to deliver an integrated solution to any location around the world. That is, until now.

NEW HORIZONS

As of April, Wärtsilä now offers utility-scale solar photo-voltaic (PV) solutions as a component of its Energy Solutions offering. These include solar PV power plants of 10 MW and above, and hybrid power plants comprising solar PV plants and internal combustion engines, together with complete systems integration. To ensure success in a hugely dynamic technological environment, Cavada stresses the importance of flexibility. “Without one’s own solar technology, it’s best to remain agnostic, and that

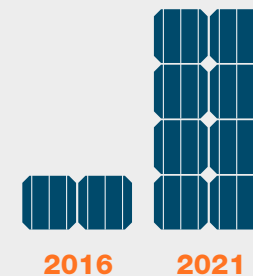
agnosticism has allowed us to select the best technology players in the market. We can proudly state that we have signed partnership agreements with the top global companies in this area.”


These partnerships effectively transform the current leaders in solar PV technology into the equivalent of departments within Wärtsilä, sharing their vast knowledge and manufacturing equipment, and guaranteeing availability, price, and delivery time on the company’s behalf.

By leveraging its delivery network and forging these connections, Wärtsilä has ensured that its customers will never be left behind. “In Wärtsilä, these technology companies see an ideal partner that has a global footprint, global relationships with its customers’ operative power plants, and is ready to deliver the latest evolution of their technology whenever it is ready for market. It’s an attractive proposition.”

ESTIMATED GLOBAL MARKET GROWTH

According to Bloomberg (2015), the market for solar solutions will grow by four times by 2021.





“The main value we offer relative to the competition is that we take care of everything.”

THE FULL PACKAGE

Wärtsilä’s solar solutions are offered with full EPC (engineering, procurement and construction) delivery, which incorporates project management, civil work, site management and supervision, engineering, materials and the equipment itself, plus integration of the complete system. As with all of the company’s energy and marine deliveries, subject to a long-term contract, Wärtsilä’s extensive service network is ready to take good care of the entire installation throughout its life cycle.

This all-encompassing approach puts the company in a wholly unique situation, says Cavada. “The main value we offer relative to the competition is that we take care of everything, wherever it is required. This differs from what other suppliers

do. They need to buy the panels, they need to install them, buy the services – we do it all, including the integration. This is turnkey, and while you may find small attempts at EPC in some countries, globally speaking, we’re unique in this respect.”

“We have capabilities, for instance, in Nigeria, in Senegal, in Jordan...” he continues. “There we have the power plants we operate, we have people on the ground with a high level of expertise, and we have an active supply chain. Today, there’s no complete offering better than this one.”

Wärtsilä’s entry into the solar energy market stands as an evolutionary landmark – a tangible step forward for the Smart Power Generation concept

and perhaps one of many more to come. Keen to put the credit where it belongs, Cavada ascribes the development of this new solar offering to entrepreneurial drive within the company. “All things considered, this could only emerge from within a working environment like Wärtsilä,” he concludes. ■

After Paris

– towards a low-emission future

SUSTAINABILITY ASSURED 2016

In November 2016, the Paris Climate Agreement was ratified – a landmark decision in the global journey towards a sustainable future. The agreement sets out a global action plan to limit the global temperature rise to well below 2°C above pre-industrial levels, and to pursue a tougher target of 1.5°C.

The agreement is a global commitment to reduce emissions and to adapt to the impacts of climate change. Countries are required to contribute by implementing their own nationally determined climate actions. The Paris agreement also

sends a powerful signal to the capital markets to support the development of a low emissions economy through their investment decisions.

Wärtsilä welcomes the agreement and considers it a remarkable achievement to have a truly global framework for the reduction of greenhouse gas emissions. We are well positioned to provide sustainable solutions for the energy and marine sectors, and can support countries in reaching their emission reduction goals. Wärtsilä's Smart Power Generation concept is entirely geared towards the

integration of renewable energy sources, and is therefore an ideal platform on which to base the next generation of power supply systems. Wärtsilä has received several recent contracts, which increase the share of renewables within the energy mix, while decreasing emissions. These include Smart Power Generation plants in the USA, Honduras, Argentina, Germany, Jordan, Bangladesh, Mauritius, and Indonesia, as well as a biogas plant in Norway.

Integration benchmarks



CHP plants to account for
25%
of Germany's electricity production by 2025

Mainz-Wiesbaden, Germany

100 MW combined heat and power (CHP) plant

- The plant consists of ten Wärtsilä 34SG engines running on natural gas, which can be started and stopped without limitations within just two minutes, thereby granting the flexibility to operate successfully when there is no solar or wind power available.
- As part of its climate action plan, Germany has committed to increasing the share of electricity produced by CHP power plants to 25% of the total electricity production by 2025.
- To meet this target, the renewed CHP Act favours flexible and environmentally-friendly CHP power plants that can operate in the balancing markets, while generating heat for the community.
- Upon completion of the plant, the Mainz-Wiesbaden area will be undergoing a transition from a traditional power and heat generation system to a modern, agile, low-carbon system utilising green energy assets to the full.

Saving fuel

during daylight hours



Jordan

46 MW solar PV addition to 250 MW Smart Power Generation

- In 2017, a 46 MW solar PV park is planned for construction adjacent to an existing engine power plant.
- The idea of the hybrid is to let the solar PV unit produce electricity in the daytime, which will reduce the use of the engines. This will cut the carbon footprint of the power plant substantially.

Integration benchmarks



Capacity of
25
tons of liquid
biogas per day

Skogn, Norway

largest biogas plant in the Nordics

- A new Wärtsilä plant will be installed at the paper mill in Skogn, Norway. The plant will convert the cleaned biogas from fishery waste and residual paper mill slurry into liquid fuel for buses.
- The plant's environmental benefits are enhanced by the fact that sulphur oxide (SOx) and particle emissions are virtually eliminated, while any released CO₂ has zero environmental impact since it is part of the existing circulatory CO₂.
- Oslo currently has 200 buses and 100 waste collection trucks running on bio-based CNG. By 2020 the city expects to have 1,200 buses using the renewable fuel, as well as some 2,000 taxis and ferries operating in the local fjord.

Share of fuel
produced from
renewable
sources to be

10%

by 2020



Southern Germany

biohybrid production plant

- The plant will include Wärtsilä's unique liquefaction system, specially designed to clean and liquefy both biogas and pipeline gas streams.
- The ability to clean both biogas and pipeline gas is new to the market and is ground-breaking in terms of flexibility and energy storage.
- Both gas cleaning and liquefaction are cost- and energy efficient, making profitable projects possible even for smaller gas streams. This is especially important within the European Union, where the target is to have 10 per cent of fuel produced from renewable sources by 2020.

Talking **transformations**

In July, Wärtsilä enhanced its digital offering by acquiring Eniram, just as the company was on the cusp of launching a transformative new solution named SkyLight. Jan Wilhelmsson, Eniram's VP, Commercial Shipping, explains the concepts underpinning the company's bold moves.



WHAT IS SKYLIGHT IN A NUTSHELL?

Jan Wilhelmsson: I used to give a presentation called 'It's nice to do what we've always done in this industry', pointing out an interesting anomaly in the way our technically advanced modern vessels work. Roughly 100 years ago, the radio was invented, which changed shipping in such a way that vessels could actually radio back home on a daily basis and communicate where they were. You took the sun's height in the middle of the day to establish your position. Once you had that, you would calculate your distance from your previous noon report, establish how much fuel remains on board, and send this data back to the office.

This was a game changer in its day, and the same methodology has been in place ever since. Most vessels that now go on charter send a short email (even this is relatively new – it wasn't so long ago that telex was the norm) communicating how many miles they have travelled, how much fuel they have on board, where they're heading, and to report on the local weather. This is used as the basis of measuring their fuel consumption, and that accumulated data is then used to assess the vessel's fuel performance.

If you think of it, it's a little insane that if you buy a car today, it's constantly reporting back to the engineering centre and its engineers. Whereas today, a large tanker or bulk carrier, in most cases, still relies on that century-old noon reporting system as the foundation for how they are commercially operated.

What we are doing with SkyLight is determining the vessel's fuel consumption curve. When you undertake noon reporting, you use the average weather conditions during that 24-hour period. Now, you don't need to be a meteorologist to realise that weather can change quite a bit over a whole day and night, so such averages are hardly precise. By moving to four times a day, you have much better granularity.

With SkyLight, we take five-minute location readings, and then automatically enrich that data with the current weather conditions. No one could manually report every five minutes, because, as an officer on board, you would be doing nothing else. SkyLight automates this function and makes it a part of a vessel's normal operations, with all the huge advantages it confers now being simply taken for granted.

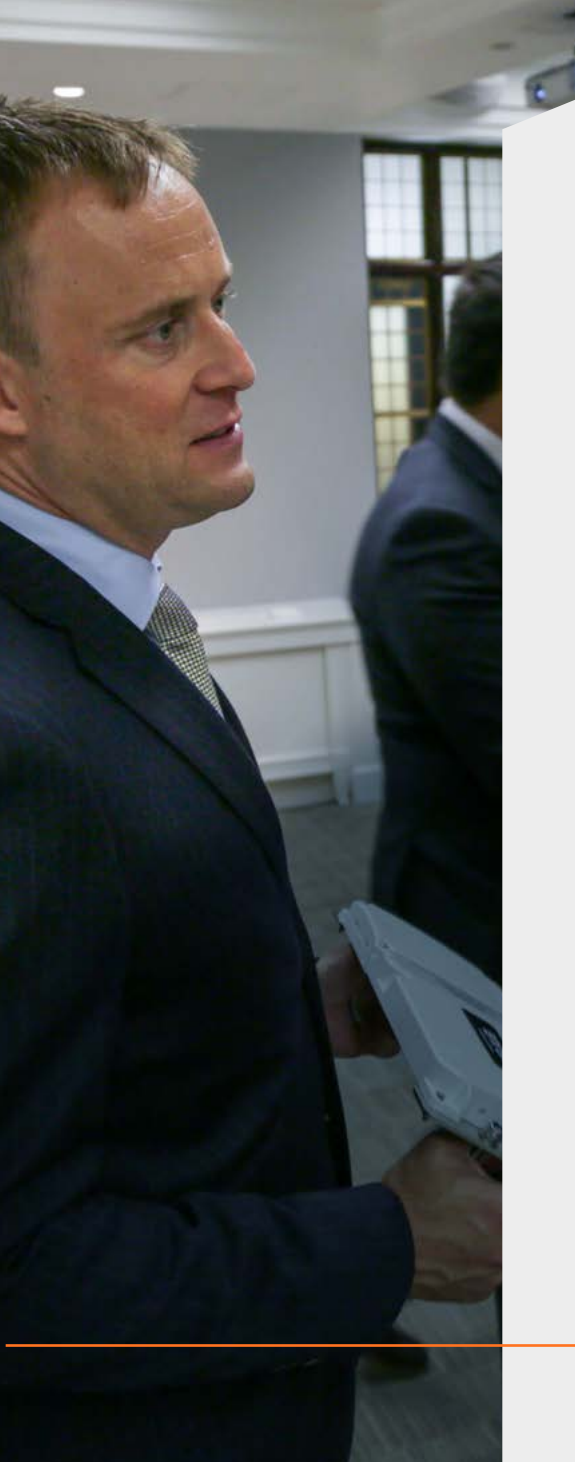
HOW WILL THE SYSTEM BENEFIT WÄRTSILÄ'S MARINE CUSTOMERS?

JW: SkyLight actually addresses the way shipping is being conducted as a business. With SkyLight, ship operators can cost-effectively monitor their fleet and compare the performance of each vessel in detail. Our software keeps records of the ships' performance, enabling more prompt reporting, planning and cost optimisation. Fundamentally, we're allowing ship operators to manage their business more effectively.

Critical to this is the accuracy of the data we extract from the vessel. For various reasons, the precision of our readings is streets ahead of that of any competing offering at this price



The transponder sends highly reliable data about the ship's movements every five minutes via satellite connection to Eniram's data centre.



point (which, in any case, would often have to consist of two or more separate solutions from different providers).

The next advantage is our modelling. We know for a fact that a very large portion of ship speed logs contain major errors. With Skylight we realised that rather than trying to correct these systems, we could just create these values using the correction-model system we had developed for our previous products, which we now refer to as “artificial sensing”. So, instead of actually measuring the speed by physically having an expensive installation on board that is integrated with the speed log and the navigation system, we use modelling to calculate it. Because we have the vessel’s movements, and we have all the weather data, the sea state and the tidal current, we know the difference between speed and distance through water, and the distance and speed over ground. And thus we can calculate the water track without resorting to the log.

All of these factors combined lead to far greater accuracy than has been seen elsewhere in the industry without major installations. And there is a very simple

correlation between the accuracy of our data, and our customer’s ability to optimise their operations based upon it.

HOW DOES SKYLIGHT REPRESENT AN INNOVATION IN TERMS OF THE BUSINESS MODEL?

JW: We are shifting from selling installations to offering analytics and optimisation sold fully as a monthly service. The industry formerly consisted of ship owners who owned and operated their vessels, whereas today, the vast majority of vessels are not owned and technically managed by the same entity that commercially operates them. So, what we’re doing here is adjusting to the market rather than attempting to change it.

This necessitates considering all the value chains separately. Ship management is now separate from commercial operations, for example. This has happened across a number of industries, but since it has now occurred to such a large extent in shipping, we need to rethink our role as a market service provider, rather than a product vendor. Of course, this is not news at Wärtsilä. In that sense, Eniram’s way of thinking fits quite nicely into the bigger picture.

“It’s easy to point out that you can accomplish much more being part of a strong global organisation.”

WHAT DOES ENIRAM AS AN EXISTING ORGANISATION BRING TO WÄRTSILÄ?

JW: Eniram is a company of digital natives. The founders are all highly educated in mathematics, statistics and IT-related fields. Add a few of us complementing this with shipping backgrounds (in fact, I’m one of the few people in the company who can’t code), and we are now able to support the industry’s move to digitalisation with tangible value propositions. So it’s very much an IT and tech-oriented company which has, over the years, also accumulated a great deal of knowledge about shipping.

The core value of the company is in its know-how and the solutions it has developed. Speaking from my own point of view, what I’m seeing now is an opportunity to get those solutions to the market much faster, thanks to the direct customer access that Wärtsilä can provide.

Secondly, we have a further opportunity in the enriched potential for development, which up to the moment of the acquisition was self-financed. This was a great way to do things but it also had some limitations. Now we have a parent company with a great deal more resources. We are yet to determine the ways that these might be employed, and in one sense of course, SkyLight as it currently exists is just the first step. But it’s easy to point out that you can accomplish much more being part of a strong global organisation. ■

**Strengthening
an ethical culture:**

three learnings

SUSTAINABILITY ASSURED 2016

In recent years, companies have been discovering the limits of traditional methods of communicating their ethical guidelines. While assets like a code of conduct are important steps towards defining the behaviour that an organisation encourages and prohibits, the topic of ethics is a much deeper one than can be encapsulated with these alone.

In response to these challenges, Wärtsilä has been developing an ethical culture programme to help personnel delineate what is acceptable in a variety of complex situations. This is no easy journey, but key learnings are already emerging, as Marko Vainikka, Director, Corporate Relations and Sustainability, explains.





TALK IT THROUGH

To develop precisely what we mean by ethical culture, we have begun a programme of workshops to discuss the topic with different internal stakeholders. The idea of these discussions is to create a common understanding and to strengthen the values and principles of the code of conduct that have already been established.

It's not a question of creating something new. Rather, the concept is to discover – through rigorous exploration and brainstorming – what these principles really mean for us in practice. To make them more concrete.

We began this process in 2016 with our top management, who have already demonstrated a substantial commitment in time and energy to the programme. As we move forward, larger groups of personnel will be involved until everyone in the organisation has to some extent

“As we move forward, larger groups of personnel will be involved until everyone in the organisation has to some extent taken part.”

taken part. One discovery is that creating ethical culture requires face-to-face discussions. This is clearly the most effective and impactful way to handle the topic, touching on its many ramifications for the way we behave, both in business and in our daily working lives. On-going conversation highlights the fact that we all are responsible for shaping our collective culture on a constant basis, every single day.

KEEP THE CONVERSATION ALIVE

The question of how to achieve this continuous on-going discussion then arises. It's important that this is not executed in an overly artificial way,

though there are of course procedural obligations, and we have taken steps to strengthen these.

For example, we have established a practice in which every member of the staff is required to sign a letter indicating that they have read the Code of Conduct and undertake to comply with its contents in their work.

We have also been including the code more strongly in development discussions. In my opinion, this is a highly suitable forum in which to determine whether our people fully understand the code's contents, and where they can address any issues they have with it, or seek to clarify their understanding. Our broader efforts to encourage this discussion begin with management. It's a gradual process, with results that are difficult to quantify, but as a benchmark we can consider a similar journey we have already taken with the subject of safety.

This was flagged as a vital topic for us some time ago, as well as an area where improvements could be made through better communication.

Fast-forward to the present, and after much work around the theme we are making more and more progress with safety year-by-year (something well documented elsewhere in our annual report), and it's a subject our management bring up in communications quite naturally – and without any external prompting.

So we know it can be done, and this is what we hope to achieve also with these admittedly more complex ethical questions. This would certainly make knowledge of potential ethical considerations a more constant companion in our work.

STRENGTHENING THE CULTURE TAKES TIME

And perhaps the most important thing to remember about all this work is that fostering a strong culture in respect of any topic is a huge task, and very much a long-term project.

To appreciate this, just consider what is perhaps the most frequent question raised in sessions around this issue:

“What is our company culture?” Even if you can provide some kind of an answer off the top of your head, does it genuinely reflect a common understanding? Would you expect one of your colleagues to give the same reply?

With our ethical culture programme, which is itself evolving, we’re simply aiming to raise the question of ethics within Wärtsilä’s collective consciousness. This

isn’t something you can ever consider “done”, and certainly it can’t be imposed upon our personnel without their own commitment and understanding.

But with time, we hope our efforts will gradually become more visible, making ethical implications more present in our thinking, and ultimately helping good ethical decision-making to become second nature. ■

“We hope our efforts will gradually become more visible, making ethical implications more present in our thinking.”





Forging the digital approach

Marco Ryan, Chief Digital Officer & Executive Vice President talks us through the opening stages of the company's digital transformation.



My appointment as Chief Digital Officer in the third quarter of 2016 was both an acknowledgement of Wäartsilä's appetite for development in this area, and a signal of our determination to be on the front line in dealing with the disruption that digital will have on the industries we serve.

When completing a broad survey of the company in the following weeks, I saw an abundance of great digital initiatives already underway. The foundations are superb, but consistency amongst them has to be strengthened, and a robust vision of our way forward must be established and then communicated across the organisation.

I see the short-term future as one of perfecting the core business around

“A robust vision of our way forward must be established and then communicated across the organisation.”

digital. Experience tells me this can be a huge eliminator of inefficiency in a company. For Wäartsilä, this means a revision of the basic processes to improve the status quo, making our current business as efficient and productive as possible.

We can provide a huge amount of value to our customers by making Wäartsilä easier to do business with, and the initial programme of digital development we have undertaken holds the key to this. This will include, for example, more standardisation of interfaces, operating alongside our recent brand refresh to ensure consistency wherever and however our customers encounter our solutions.

But this early stage also represents an essential layer of preparation for a greater and more profound digital transformation to come. There's an awareness here, from management level down, that entirely new business models are on the horizon. By embarking upon a new path of strategic thinking, these can be spearheaded, and this is the long-term goal for my team and myself.



“Wärtsilä’s customers can rely upon our dedication to delighting them with a constantly improving digital experience.”

What approach do we adopt towards innovation, corporate venturing, disruption, and the eco-system around start-ups? How do we partner, and through which platforms? And how do we leverage all this digital development to drive growth?

In the coming months, many of these questions will be addressed, and a harmonised structure of answering actions revealed. In addition to surveying organisational readiness for change, 2016 has been about establishing our own appetite for transformation as a company.

Once the ambition level for this next wave of development is set, the path will become much clearer. Keep your ears open for the result – we won’t be shy about sharing it when the moment arrives. But wherever we position ourselves in this regard, two facts are already clear: Wärtsilä’s customers can rely upon our dedication to delighting them with a constantly improving digital experience, and our stakeholders can rest assured that we are focused on capturing the most lucrative long-term opportunities on the horizon. ■



Driving Operational Excellence

After several successful pilots, Wärtsilä's new way of working – a system of continuous improvement – is being introduced across the company.

Wärtsilä recently undertook the first steps in a transition that will affect how the company performs across every business area and function. Working under the banner of 'Operational Excellence', Fredrik Nordström and his small team have been piloting the new way of working with selected units. A gradual rollout is now firmly underway.

"This initiative started from the top," Nordström emphasises. "Our management perceived that we have some very good practices in certain locations, but we have not been able to systematically share them across the different units. In other words, we have pockets of excellence to exploit – if we can learn from each other and utilise the knowledge we have in other locations, we will raise Wärtsilä's entire performance."

IN-SYNC IMPROVEMENT

Operational Excellence is not focused solely on manufacturing, but takes account of the end-to-end processes at work within the company. Nordström compares effective collaboration within and between different functions – the ultimate aim of the initiative – to the workings of an orchestra. "With everyone working together in a synchronised and effective manner, we can gradually transform both our own expectations and those of our customers."

Work began with two of Wärtsilä's biggest units, based in Trieste and Vaasa, and the success stories quickly began to accumulate. By initially focusing on systematic improvement in a limited area of activity, the new way of working put continual goal-setting and realistic achievements at the heart of the agenda. With achievements such as reducing assembly time under their belt, units then moved towards more ambitious targets involving cross-functional collaboration.

"If we can learn from each other and utilise the knowledge we have in other locations, we will raise Wärtsilä's entire performance."

MOTIVATING CHANGE

The secret of effecting transformation of this nature is the ambassadorial approach. Nordström and his team play a supporting role, but the improvements are facilitated by "change agents" within the units themselves. The focus areas for improvement are pinpointed and reported on during team meetings, giving Operational Excellence consistent topicality.



"In January 2016, we launched what we call the Wärtsilä Operational Excellence Academy," says Nordström. "Here, through various workshops, we strengthen the understanding, capabilities, and motivation for Wärtsilä leaders on all levels to engage and support their teams to systematically and continuously develop the way things are done and set new standards of performance. The entire Board of Management participated in the first round of workshops in early 2016, leading strongly by example."

This large investment in time and effort is now clearly starting to pay off. As of early 2017, fifteen sets of focused initiatives

in different units have been finalised, resulting, for example, in reductions in inventories, increased productivity and improved delivery performance, which in several cases has enabled the winning of more orders.

There are now Operational Excellence initiatives ongoing in all divisions, covering areas all the way from the sales phase to the commissioning of Wärtsilä products and systems. "This is not a quick fix," Nordström points out, "but with strong alignment and collaboration from all, we can achieve substantial and sustainable improvements with positive customer and business impacts." ■



Possible **Futures**

A new HR concept is helping to show Wärtsilä employees the wealth of career opportunities they have at their fingertips.

In Wärtsilä's employee-engagement survey MyVoice, one of the key findings has been in identifying the company's strengths in terms of career development. It has become apparent that employees see the possibility of developing themselves and their career journey at Wärtsilä as a quality so strong as to be part of the company's DNA. A healthy proportion of vacancies are filled internally, and employees have a strong sense of mobility within the organisation.

Seeking to capitalise on these strengths, and make career opportunities within the company even more visible to all employees, Wärtsilä has recently launched the 'Possible Futures' concept. This will first take the form of an intranet portal, designed to highlight the various development opportunities for personnel, and to share their success stories. Soon thereafter, the concept will be expanded in scope to become a key component of external recruitment marketing activities,

and Wärtsilä's employer branding as a whole. It will also be embedded within the company's careers site.

With Wärtsilä active in two distinct yet inter-related fields, the energy and marine industries, the possibilities for career development are effectively doubled. Employees have the chance to engage with different disciplines, both within the business they were recruited into and elsewhere.

The aim across the board, points out Saara Eder-Falck, Manager, Global Resourcing & Employer Branding at Wärtsilä's Human Resources, is to help both existing employees and potential recruits understand that working for Wärtsilä is a long-term opportunity. "We don't expect people to have their whole future mapped out," she explains, "but simply to recognise the huge variety of possibilities open to them." ■

“With Wärtsilä active in two distinct yet inter-related fields, the possibilities for career development are effectively doubled.”



Sustainable Development Goals:

A mutual effort for global prosperity

SUSTAINABILITY ASSURED 2016

On 1 January 2016, the Sustainable Development Goals (SDGs) set by the United Nations came into force. The SDGs set out to tackle a whole range of issues, from gender inequality to climate change, with the overall goal of ending global poverty.

The 17 Goals and 169 targets, which are part of a wider 2030 Agenda for Sustainable Development, build on the Millennium Development Goals (MDGs) set in 2000. Compared to the MDGs, the SDGs are broader in scope and are

applied to all countries and actors. The Goals are founded on the principle that all actors take part in solving the issues – countries rich and poor, corporations big and small. The role of businesses is seen as being vital to the delivery of innovative changes that can have significant influence.

With our strong focus on sustainability, Wärtsilä is no exception. Several of the Goals deal with issues that Wärtsilä already contributes to with a positive impact, and continually strives to improve.

Respect for people

Wärtsilä's efforts to promote people's health, safety and well-being covers employees, suppliers, customers and local communities. Our high environmental, health and safety (EHS) standards aim at zero injuries among employees and contractors, and our products and solutions are safe and reliable to use. We are also committed to continuous improvement in our environmental performance to avoid causing harm to the communities close to our operations.

We support the work-related rights defined by the International Labour Organization, and uphold the freedom of association and the right to collective bargaining. Wärtsilä promotes gender equality and is committed to include women in all aspects of its business, and to fight against gender discrimination. Our Diversity Initiative has been in place since 2012, fostering an inclusive corporate culture at all levels.

Wärtsilä contributes to sustainable economic growth by promoting global corporate citizenship, an inclusive corporate culture, and local employment. Continuous learning and self-development are encouraged by offering a wide range of competence development options at all levels of the organisation.



Sustainable and modern energy

Wärtsilä plays an important role in helping to meet the world's increased demand for energy in a sustainable way. The focus is on flexible and efficient solutions that enable the transition to a more sustainable and modern energy infrastructure. Wärtsilä's Smart Power Generation power plants provide energy efficiency as well as fuel and operational flexibility, which enables the effective integration of wind and solar power into the grid. Wärtsilä's Dry Flexicycle power plants can cut water consumption to close to zero, making it possible to place power plants in water-stressed areas.

During 2016, we entered the solar energy business by offering utility-scale solar photo-voltaic (PV) solutions to help customers reduce carbon emissions. We were also awarded the contract to supply a biogas liquefaction plant in Norway, which will convert cleaned biogas from fishery waste and residual paper mill slurry into liquid fuel for public transport vehicles.

Wärtsilä engages actively in an open dialogue with various stakeholders to provide expertise and support for enhancing clean energy technology and research on a global scale.



Clean marine technologies

One of Wärtsilä's core business areas focuses on providing sustainable innovations for the marine industry. By eliminating or reducing polluting discharges and emissions from customer's processes, Wärtsilä ensures that they can continue to operate in sensitive areas around the world. The range of environmentally sound products and solutions includes systems for ballast water management, wastewater treatment, oily water systems, exhaust gas cleaning, and dual-fuel marine engines. In 2016, Wärtsilä launched a new ferry concept featuring zero or low emissions running on batteries. The company also introduced the new Wärtsilä Enviroguard SLR water lubricated seal, which eliminates the risk of polluting the marine environment.

Wärtsilä is also involved in numerous global and local partnerships, such as the Sustainable Shipping Initiative and the Sustainable Marine Biofuel Initiative.



Responsible business conduct

Our commitment to sustainability and responsible business is based on our mission, vision and strategy. Wärtsilä's values and Code of Conduct define the common rules for all our employees, and provide guidance on Wärtsilä's approach to responsible business practices.

Wärtsilä's Code of Conduct and supporting policies expressly prohibit the company, its employees and suppliers from offering or accepting any kind of benefit considered a bribe, and from taking actions that could give rise to a conflict of interest or breach of loyalty. Wärtsilä complies with international good practices and anti-corruption laws of the countries in which Wärtsilä operates, and urges the reporting of any cases of corruption and bribery. The implementation of the policies is supported by an extensive training programme for all Wärtsilä employees.

Wärtsilä aims to contribute towards the well-being of local communities in which the company is present. Means for this include, for example, creating employment, paying taxes and social dues, providing training and education to employees, co-operating with local stakeholders, and supporting local development.



New motion in ballast water

SUSTAINABILITY ASSURED 2016

In 2016, the IMO passed far-reaching legislation on ballast water, which will have powerful business implications for Wärtsilä's customers.

According to the United Nations, the three greatest risks to the world's ecology are global warming, the extinction of endangered species, and threats posed to local ecosystems around the globe. The last of these is the focus of Wärtsilä's ballast-water treatment solutions, which are designed to help customers comply with the latest regulations in this area.

In September 2016, the IMO Ballast Water Management Convention was ratified. Under its terms, which will enter into force worldwide in September 2017, ships will be required to manage their ballast water to deal with aquatic organisms and pathogens within it.

The convention will require all vessels in international trade to comply with certain standards, in line with ship-specific management plans. For most ships, this necessitates the installation of a ballast water treatment system. While there are



for the ship, and another the installation. We have the possibility to do the full job, starting from the first discussions all the way through to completion, or any combination of services in between.”

“Now more than ever, ballast water solutions represent a burgeoning market.”

more than 60 such systems on the market today, to date Wärtsilä is the only supplier to offer two distinct technologies to cover the addition of ballast water solutions to ships of all sizes.

“We knew that no one single system or technology could satisfy the need of all the ships in the world,” explains Juha Kytölä, Vice President of Environmental Solutions. “For this reason, we have actually developed two product ranges based on different technologies in order to satisfy the various requirements of ship owners. This enables us to develop our own potential in this business.”

A FRESH IMPERATIVE

Now more than ever, ballast water solutions represent a burgeoning market. Regulations currently demand

that all vessels undertake dry-docking every five years to be inspected and for any necessary repairs to be made. The convention now stipulates that any vessel dry-docking after September 8th, 2017, will have to install a ballast water treatment system as part of the process. With over 30,000 ships now at sea without any such system, the supply opportunity is clearly sizeable. Wärtsilä’s global reach is a significant advantage in this respect, as ship owners can make use of it to secure identical services – adhering to the same high standards – anywhere in the world.

Wärtsilä also differentiates itself here thanks to the breadth of its offering. “Many of our competitors only have the system itself,” says Kytölä, “while another agent is required to execute the design

then be revised in 2023, based upon findings from the data gathered in the interim.

The decision was also made to establish northern Europe – namely the Baltic Sea, the English Channel, and the North Sea – as nitrogen emission control areas (NECA). Ships built after the 1st of January, 2021 and operating in northern European waters must thereafter comply with the same nitrogen regulations already effective around the USA and elsewhere.

Finally, the meeting decided that the sulphur content in marine fuel must be reduced globally. At the close of 2020, the maximum amount allowed will be 0.5 per cent (down from 3.5). Alternatively, ships may, of course, use the same fuel as before and clean the exhaust gases with the help of scrubbers. In so doing they must ensure that their SOX emissions are no higher than they would be when burning LNG or expensive low-sulphur fuels.

With its host of environmental solutions, Wärtsilä is well placed to help its customers with each of these developments. Learn more about the environmental excellence that Wärtsilä strives to achieve for its customers via the company’s web site. ■

FURTHER DEVELOPMENTS

Ballast water was not the only environmental topic for which marine legislation was ratified in 2016. In the same meeting in September 2016 (the 70th session of the Marine Environment Protection Committee, or MEPC), the IMO also ruled upon several other matters with extensive consequences for the marine industries.

Widely viewed as a response to the International Civil Aviation Organization (ICAO)’s initiative to reduce aviation emissions, the meeting agreed on a roadmap towards 2018 as a milestone for defining its own climate strategy, and for the stipulation of near-, mid-, and long-term measures. With regulations relating to more comprehensive data collection also coming into force, this strategy may



Enter the Winnobooster

SUSTAINABILITY ASSURED 2016

A new programme that highlights and rewards radical innovations from within Wärtsilä.

With the advent of smart technologies, digitalisation, and the disruption rife across almost every industry and market, thought leadership has become a critical topic for Wärtsilä. Innovation and entrepreneurial thinking are already deeply embedded in the company's way of working, but in 2016 these qualities have been taken a step forward with a fresh approach to fostering powerful new business developments within the company.

“Innovation and entrepreneurial thinking are already deeply embedded in our way of working, but Winnobooster takes these qualities a step forward.”

One result of this is Winnobooster, an ongoing initiative launched in 2016. First, internal communication channels are used to solicit radical innovations for Wärtsilä to pursue. The best of these are then selected for presentation to the Innovation Board, headed by Roger Holm, President of Marine Solutions, and composed of experts from each of our business areas

and corporate functions, along with one outsider for additional perspective.

In these monthly board meetings, applicants not only present their own proposed innovations, but also benefit from attending and listening to the other presentations. “In this way,” says Mikael Simelius, Vice President, Marketing, Marine Solutions, “skills are sharpened and every participant, including the board members, have the opportunity to develop their knowledge.”

GRANTING OPPORTUNITIES

In 2016, four such meetings were held, at which 27 innovative suggestions were presented. Seven of these were granted funding to be pursued further by their entrants, which Simelius considers an excellent result. “The crucial difference between Winnobooster and other innovation processes we have run in the past,” he continues, “is that successful applicants are rewarded with the real possibility to develop their innovation.”

Winning innovations must provide concrete answers to questions such as: “Does this have the power to change industry economics? Does it have the power to disrupt parts of our business? Will it transform any part of our value



chain? Does it have the power to change our competitive advantage?” Equally, those presenting their innovations will have to demonstrate their relevance to Wärtsilä's existing business, but other ideas are also welcome.

Winnobooster is just one encapsulation of the transformative processes at work across Wärtsilä. The programme highlights the willingness within the company to embrace new ways of working and potentially fruitful business models yet to be explored. Work on thought leadership also continues in other

“The programme highlights the willingness within Wärtsilä to embrace new ways of working and potentially fruitful business models yet to be explored.”

areas, as the company seeks to preserve its record for innovative thinking – always with a view to conferring upon customers the ability to shape their own markets and improve their business. ■