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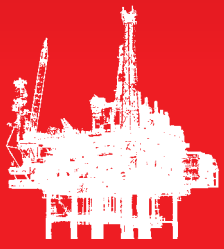

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PLATFORM EDGE

Finland wants to create the world's first unmanned maritime systems and services – as well as give birth to an efficient autonomous maritime ecosystem by 2025. To support these ambitious goals, a comprehensive project was launched last autumn. The Ministry of Transport and Communications supports the undertaking by examining possible test areas for unmanned vessels and by providing a suitable environment for flexible testing operations. The project involves nearly 60 companies and is included in the Arctic Seas programme of Tekes, the Finnish funding agency for innovation.

Anne Berner, Minister of Transport and Communications, has commented that the promotion of digitalisation and extensive utilisation of automation and information are the driving forces in many Government key projects – and the autonomous maritime venture is a fine example of this. In the maritime sector, the added digital layers can significantly enhance safety, reduce emissions and improve productivity. Minister Berner believes that Finland is especially well equipped to take the global lead in maritime transport and the related automation and information industry – and she may well have a case.

For example, Finland has plenty of agile ICT startups to help out in the development of the paradigm-busting autonomous shipping solutions. The startups thrive through an ecosystem mentality which is also a forte of the Finnish marine industry: the Turku shipyard alone manages a remarkable network of over 500 suppliers.

And the international element is already there. Rolls-Royce, for instance, has been 'in-country' for more than half a century – and is presently hard at work planning its remote and autonomous ship technology on the west coast of Finland.

Tekes is committed to financing autonomous marine ecosystem development and boosting new innovations into markets in the coming years. As Finland's world-class ICT startup scene is joining forces with the country's strong maritime players, the exchange of (hopefully revolutionary) ideas is amplified considerably.

The 'autonomous seas' initiative promises to create a common roadmap for reaching autonomous marine operations, thus enabling effective co-operation and coordinated development between industry, research institutes, classification societies and authorities. The roadmap creation and implementation is steered on by a group of leading industry partners. DIMECC acts as the "ecosystem manager" and is responsible for the achievement of effective co-operation and concrete objectives between the players.

The new initiative is also a prime example of the emerging Platform Economy: once you have a solid foundation, all kinds of good things can come to life.

PETRI CHARPENTIER

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In a joint effort, Rolls-Royce, VTT Technical Research Centre of Finland and Tampere University of Technology – along with other experts – are researching new technologies for the pilot projects of autonomous ships. Modern remote-control systems for maritime applications are also on the drawing board. The development of onboard sensors and automation systems will eventually also benefit the operators of more traditional kinds of vessels.

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With a long history of innovations and successes in the field of information and communication technologies, Finland is now gaining headway in maritime ICT solutions and digitalisation. Making intelligent and productive use of high volumes of ship data and other available maritime information is the order of the day. The utilisation of information and communication technologies (ICT) within the marine industries was highlighted in the MERIT project.

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26 Molslinjen's new vessel to feature hi-tech automation & safety systems

Rauma Marine Constructions Oy (RMC), a Finnish shipbuilding company, is building a 158-metre passenger and car vessel for the Danish shipping company Molslinjen A/S. The ship will be equipped with advanced new-generation electrical and automation systems.

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With the aim of raising the profile of close-range travel, Tallink hired dSign Vertti Kivi & Co as the interior designers of the shipping company's new ferry in January 2015. The basis for the design concept was to be found in Tallink's passenger feedback and in future visions of ship travelling – visions combining relaxation, work, and culinary revelations to ideal shopping opportunities. The point was to make even adult passengers face the joy of adventure and exploring, instead of being constantly weary of uneventful waiting onboard the ship.

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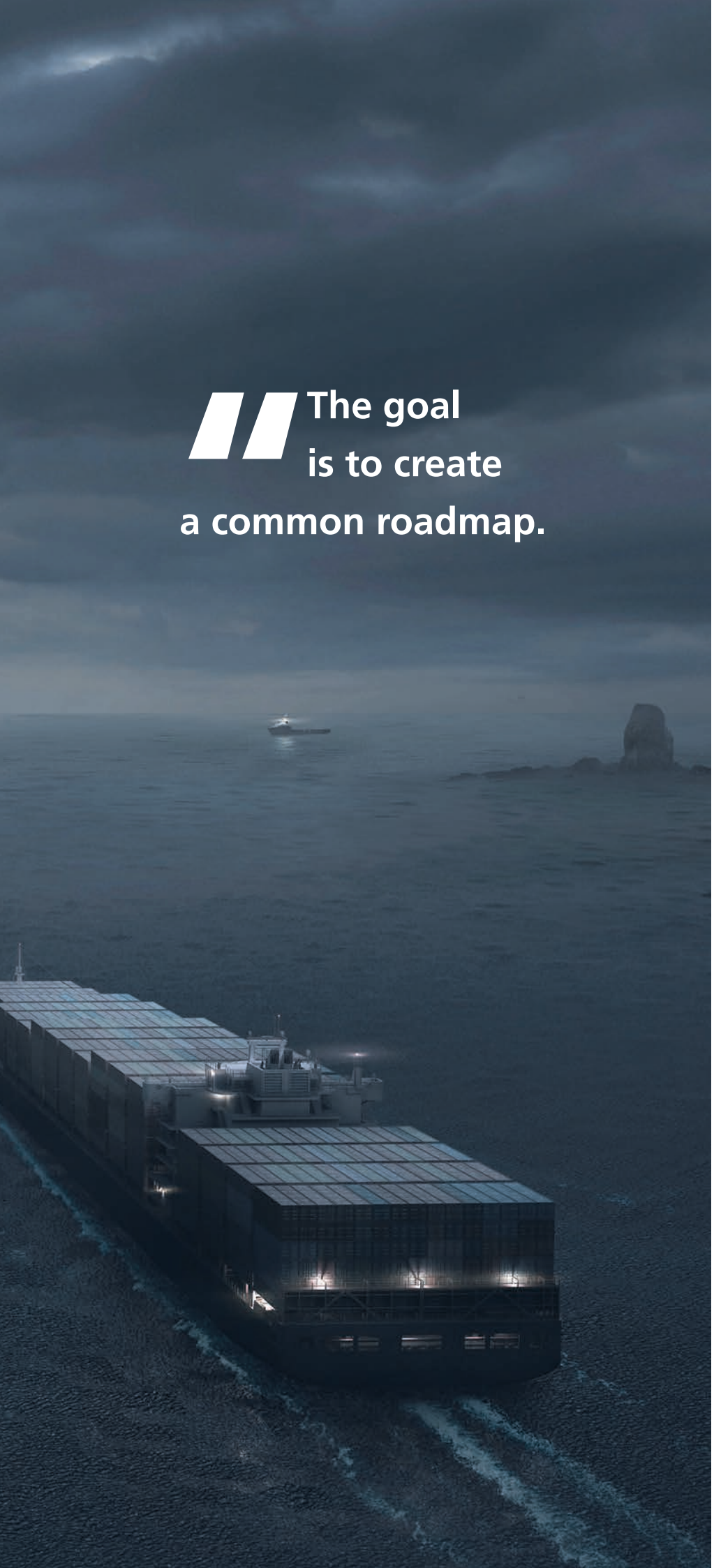
Going for Gold

FINLAND WANTS TO CREATE THE BEST AUTONOMOUS SHIPPING SOLUTIONS ON THE PLANET

by: SAMI J. ANTEROINEN

photo: ROLLS-ROYCE PLC.

Rolls-Royce believes that remotely controlled and autonomous ships represent a fundamental change in shipping over the next decade and are driving the digital transformation in the sector.



Finns are targeting the development of the world's best autonomous shipping solutions in earnest. Digitalisation plays a strong role in the development of the competitiveness of the Finnish maritime cluster and has also secured the necessary political backing, since Prime Minister Juha Sipilä's Government sees the autonomous maritime ecosystem as a key action of Finnish digitalisation strategy.

The aim of the autonomous initiative is to provide the world's first unmanned maritime products, services and vivid ecosystem by 2025. The first pilots and applications to come rolling down the pipeline are likely to be autonomous cargo ships and freight.

As a part of the ecosystem, the Ministry of Transport and Communications is committed to facilitating testing of autonomous vessels in Finland in a flexible manner. As it stands, there are almost 80 companies in the ecosystem, with such major players as Cargotec, Ericsson, Meyer Turku, Rolls-Royce, Tieto and Wärtsilä included in the mix.

COME TOGETHER, RIGHT NOW

Tekes, the Finnish Funding Agency for Innovation, is lending its support to the initiative. Program Manager Piia Moilanen from Tekes says that bringing together the vibrant ICT start-up scene and strong maritime players is likely to yield excellent results. New networks will boost the exchange of ideas and create a pioneering community for intelligent shipping, she believes.

"Tekes is committed to financing autonomous marine ecosystem development and boosting new innovations into markets in the coming years," she adds.

But what does all this mean in practice? – The goal is to create a common roadmap for reaching autonomous marine operations and to enable effective co-operation and coordinated development between industry, research institutes, classification societies and authorities. The roadmap creation and implementation is steered by a group of leading industry partners.

photo: CARGOTEC

> The corporate world is playing along.

The first pilots and applications to come rolling down the pipeline are likely to be autonomous cargo ships and freight.

ECOSYSTEM EXCELLENCE

DIMECC, a national co-creation platform, serves as the ecosystem manager and is responsible for achieving effective co-operation and concrete objectives between the players. DIMECC's recent Design for Value (D4V) project was a rather well-received undertaking with the stated goal of understanding and exploiting the opportunities of digital disruption in maritime logistics value chains.

Harri Kulmala, CEO of DIMECC, sees the ecosystem as a continuum to the sector's long-term R&D&I facilitation, where cross-industrial innovations are boosted considerably.

> Autonomous ships represent a fundamental change in shipping.

"Finland has world-class marine technologies and ICT competencies. By combining these in a novel way, the objective can be reached", Kulmala believes.

START UP THE ENGINES

And the corporate world is playing along: Rolls-Royce announced in March 2017 that it will establish its Marine R&D Centre for

Remote Control & Autonomous Ships and Artificial Intelligence in Turku, Finland. The centre will be opened this year.

Rolls-Royce's strategic partners in the venture will be the Technical Research Centre of Finland (VTT) and Tampere University of Technology (TUT), together with numerous SMEs and startups specialising in new technologies.

Rolls-Royce believes that remotely controlled and autonomous ships represent a fundamental change in shipping over the next decade and are driving the digital transformation in the sector.

"Finland is the home of top ICT expertise and a strong maritime cluster. That is why Rolls-Royce has decided to establish the centre in Turku," explains SVP Sauli Eloranta of Rolls-Royce. For Rolls-Royce, autonomous vessels are just the most recent chapter in the British company's over a 50-year presence in Finland.

TOTAL TRANSFORMATION

Mikael Mäkinen, Rolls-Royce, President (Marine), comments that digitalisation will transform the shipping industry in the years ahead. "Over the coming years, we need to invest globally to develop the required capabilities and to establish a range of market-ready products and systems to take advantage of what is a significant global market opportunity," Mäkinen analyses.

Furthermore, Rolls Royce's decision to focus its autonomous shipping R&D in Finland is pushing Tekes to increase its investments in enabling technologies, such as artificial intelligence and communication technologies, as well as keep supporting companies that create leading knowhow and synergies with autonomous shipping.

"Remotely operated and autonomous shipping projects provide unique opportunities to develop pioneering solutions alongside lead users," says Piia Moilanen.

Pekka Sivonen, Executive Director of Digitalisation Strategies and Programmes at Tekes, adds that autonomous shipping and logistics offer "significant customer interface". It is natural to direct development to meet those needs, he points out. ■

Preparing for the era of autonomous ships

by: MERJA KIHL AND ARI MONONEN
photos: ROLLS-ROYCE PLC.

In a joint effort, Rolls-Royce, VTT Technical Research Centre of Finland and Tampere University of Technology – along with other experts – are researching new technologies for the pilot projects of autonomous ships. Modern remote-control systems for maritime applications are also on the drawing board.

The development of onboard sensors and automation systems will eventually also benefit the operators of more traditional kinds of vessels.

For some years already, Rolls-Royce Marine has been involved in the research and development of remote-controlled and autonomous ships. One of the early R&D projects in this field was AAWA, the Advanced Autonomous Waterbourne Applications Initiative that was started in late 2015.

This project has proved successful in the development of concepts and automation systems for unmanned vessels.

"Now the AAWA project is in its final stages, but several other related projects are now ongoing," says Mr. Sauli Eloranta, Senior Vice President for Technology Management and Innovation at Rolls-Royce Marine.

"For instance, we have strategic part-

nerships with both VTT Technical Research Centre of Finland and Tampere University of Technology. Among other things, we have research cooperation in the field of remote control systems for autonomous ships."

Rolls-Royce Marine has already established a research centre for remote-controlled and autonomous ships in Turku in southwestern Finland. New employees are currently being hired.

"Rolls-Royce has announced to secure 230 million euros for R&D projects for related development projects," Mr. Eloranta says.

TEST AREA FOR PILOT PROJECTS

Rolls-Royce is interested in the development of remote-controlled and autonomous transportation systems as such systems would be flexible and improve operational efficiency of maritime traffic.

For the development of autonomous ships, new onboard sensor systems and new-generation artificial intelligence will be needed.

Dimecc Oy, a Finnish company for Digital, Internet, Materials & Engineering Co-Creation, has made an application for the establishment of a test area for unmanned vessels off the west coast

"The test area would cover approximately 200 square kilometres.

"Unmanned and remote-controlled cargo ships for shorter routes are becoming feasible sooner," Research Scientist Hannu Karvonen says.

of Finland in Eurajoki, northwest of Olkiluoto. This test area would cover approximately 200 square kilometres and would be in use until 2025, with periodic restrictions for non-related maritime traffic.

Seaborne tests for remote-controlled ships would be carried out in this area, with the aim of further developing their technologies. Apart from Rolls-Royce, several other companies are involved in the development projects of remotely controlled vessels.

The test area is to become operational later in the year 2017, subject to permits from local officials.

According to Mr. Eloranta, Rolls-Royce will probably test various different types of unmanned vessels at the test range.

"Before remote-control centres are built, it will be necessary to test the technologies in controlled conditions."

"Unmanned vessels will not become operational overnight. Ships will have on-board crews for a long time to come. Probably ship automation will be increased gradually, but crews will still be required to bypass automated systems and take control if needed," Eloranta says.

"Nowadays, shipping companies are taking an interest in these concepts. One should remember that when better on-board sensors are developed, they will also benefit traditional ships."

SHORE CONTROL CENTRES WILL NEED RELIABLE DATA

Research Scientist Hannu Karvonen from VTT Technical Research Centre of Finland notes that Rolls-Royce and VTT have worked together for the development of future ship command bridge concepts for tugboats, cargo ships, and platform supply vessels already in the FIMECC UXUS program that started five years ago.

"More recently, e.g. the AAWA initiative and Design for Value projects have included more detailed research of remote-control systems and control centres for unmanned ships," he says.

"However, the building of fully automated ships for international maritime

> **"Ships will have on-board crews for a long time to come.**

With less need for crew quarters, ships would have more space for transporting commercial cargo.

traffic will still require a lot of work and also the modification of existing IMO regulations. Smaller-scale local pilot projects will be the next step."

According to Mr. Karvonen, fully automated ocean-going ships might perhaps become a reality in the 2030s.

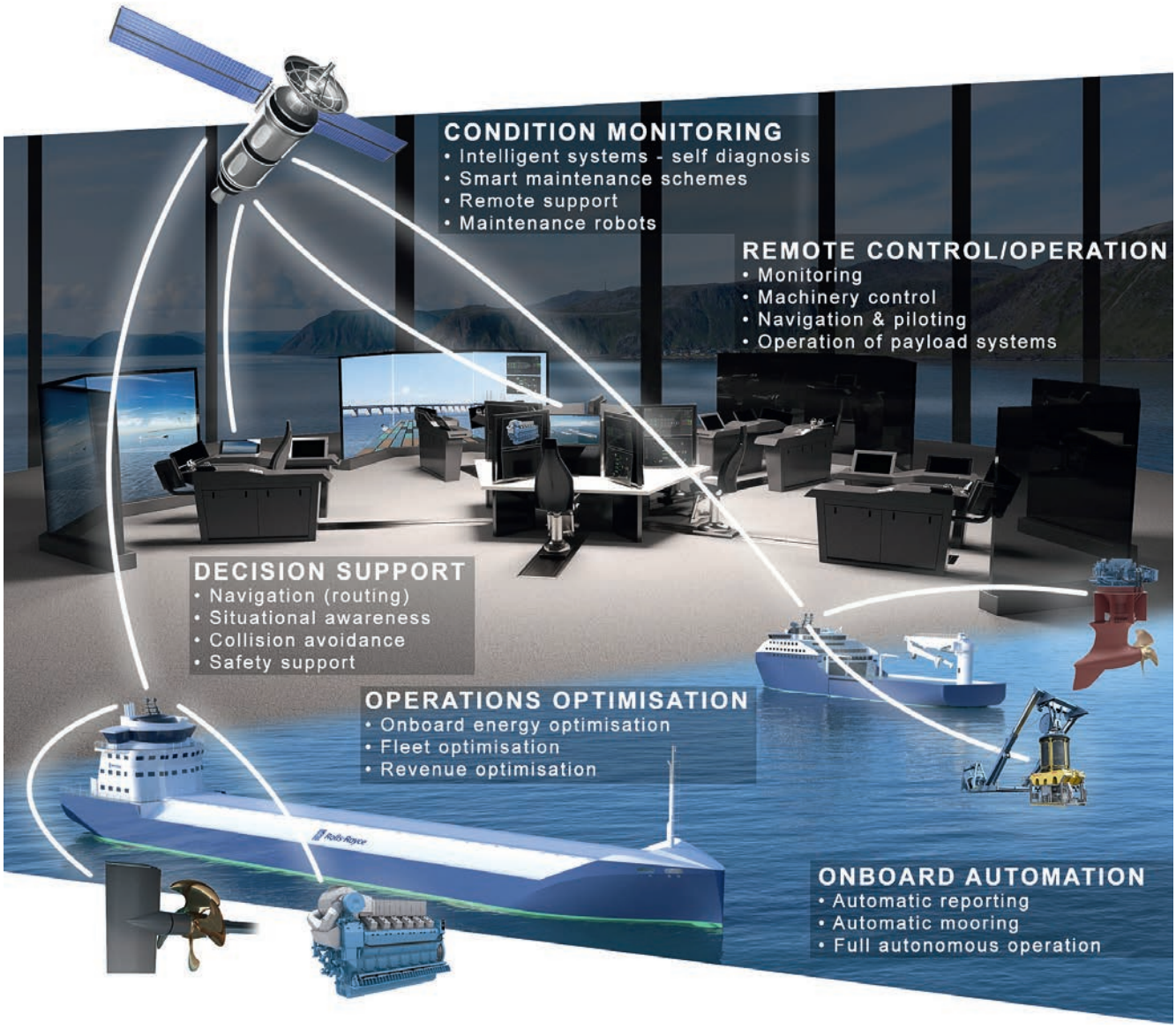
"Unmanned and remote-controlled cargo ships for shorter routes are becoming feasible sooner. Such ships would be economic as they might be lightweight, with less need for crew quarters. There would be more space for transporting commercial cargo."

Shore control centres could be utilised for adjusting route coordinates and for troubleshooting as necessary. Operator displays would show, for example, ship-specific data and live onboard video signals.

"Today's sailors may become tomorrow's shore controllers. The workforce will benefit from more regular working hours and land-based work environments, but the new work roles present also some challenges," Karvonen assumes.

In any case, satellite communication systems between ships and control centres need to be able to transmit data rapidly and reliably. ■

> **"Today's sailors may become tomorrow's shore controllers.**



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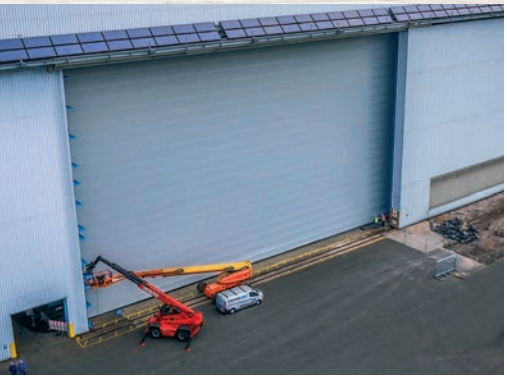

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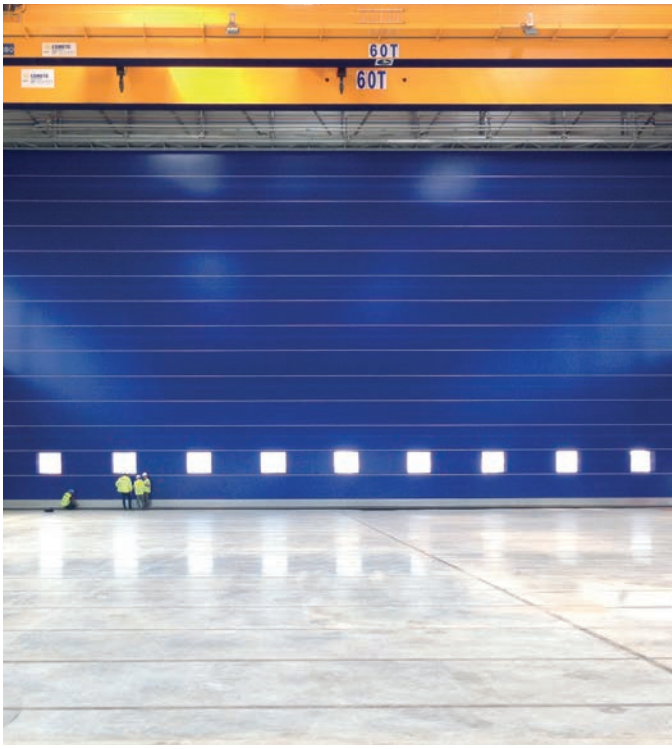

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Set the Course for Digital

by: SAMI J. ANTEROINEN
photo: AS TALLINK GRUPP

The digitalisation of the maritime industry is in full swing. The "digital wave" concerns a range of things: data transfer, big data, deficiencies of standardisation, the challenges in system integration as well as challenges for legislation, business and personnel. But what does all this mean from the perspective of classification societies?

The International Association of Classification Societies (IACS) / EU workshop on Digitalisation of Maritime Transport, hosted in Brussels in March, focused on trends, safety and environmental aspects of cyber systems in shipping.

Both IACS and the European Commission are keen on the issue, as initiatives to implement existing digital practices – such as e-certification and national single windows – gather pace and new technologies become closer to everyday application.

Digitalisation can also be used to improve the efficiency of ships, unify data exchange formats, integrate drones into ship inspections and – in the long run – launch a whole new era of autonomous ships.

KEEP THE SEAS SAFE

Niklas Rönnberg from Lloyd's Register believes that cyber security for ships is a big concern now and in the future.

"It's up to us to communicate to the customer how to use data safely," he says, acknowledging especially the sensitive nature of data transmissions.

As autonomous shipping is viewed as a novel way to make maritime more efficient – while bringing down operation costs and optimising energy use – many players are interested in exploring the opportunities therein. Various projects have already been completed, including the EU-financed Maritime Unmanned Navigation through Intelligence in Networks (MUNIN) project.

> **"Cyber security for ships is a big concern.**

At the same time, while there is an improvement in crew safety – or, rather, having no human crew means nobody can

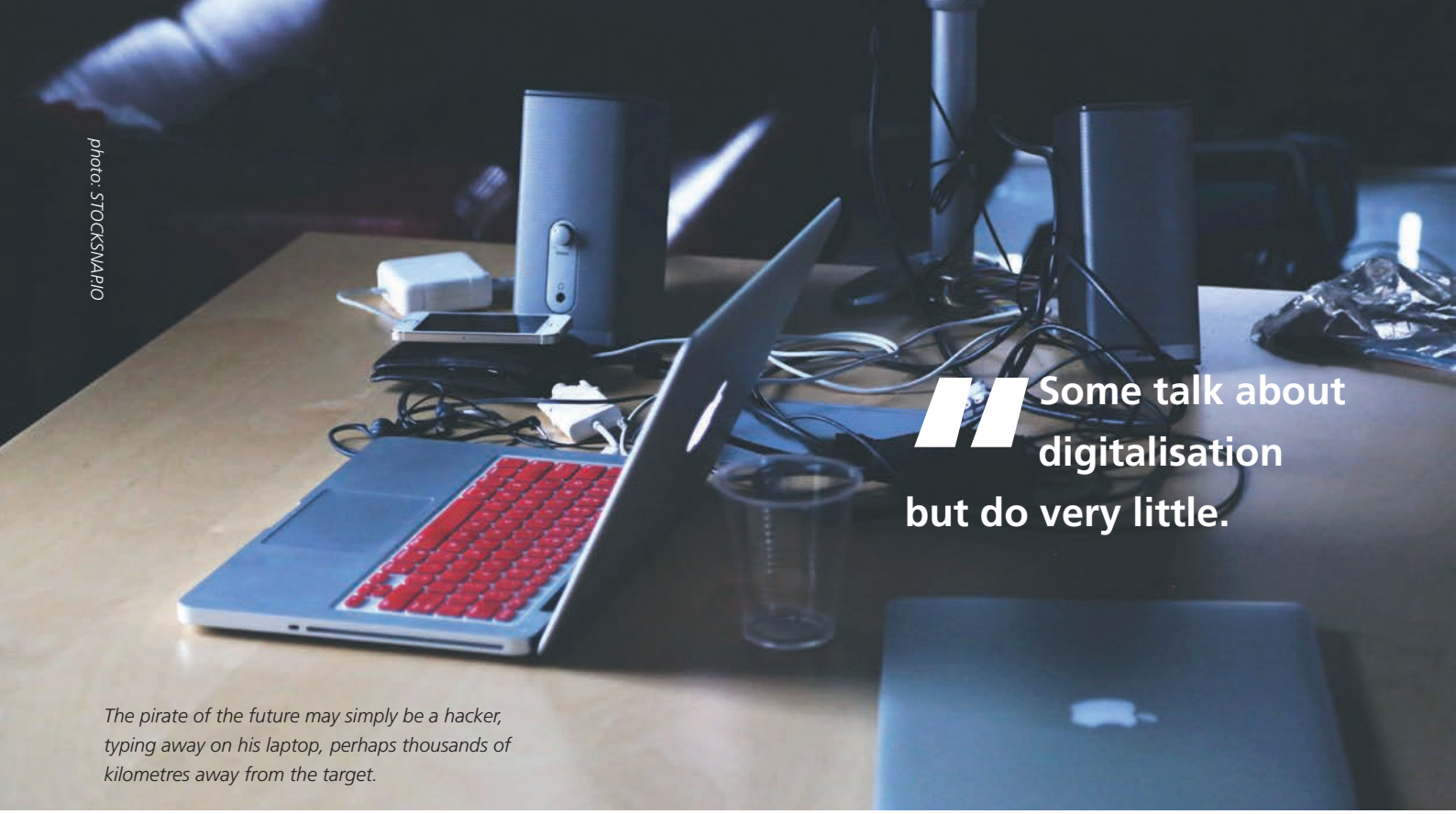


photo: STOCKSNAPIO

> "Some talk about digitalisation but do very little.

The pirate of the future may simply be a hacker, typing away on his laptop, perhaps thousands of kilometres away from the target.

get hurt, either – there are concerns for cyber security. Rönnberg points out that the pirate of the future may simply be a hacker, typing away on his laptop, perhaps thousands of kilometres away from the target.

"We must make sure that autonomous ships can't be hijacked in this manner."

PLATFORM ECONOMY EMERGING

Still, autonomous ships are very trendy right now, but the bulk of digitalisation is visible in other things. Rönnberg points out to the great digitalisation process of the entire logistics chain: whether you're talking about ships, trains, planes or cars, it's all part of the same global infrastructure that is very much online.

"Right now, it's becoming a question of who is making the best use of the transportation platforms out there."

According to Rönnberg, digitalisation is a hot topic in the industry, but not everybody is in a position to fully understand its possibilities – let alone take advantage of them.

"We have a situation where some talk about digitalisation but do very little. Others, on the other hand, are deeply involved exploring the digital opportunities – and some, unfortunately, run the risk of falling behind entirely."

Rönnberg is also of the opinion that the current development is likely to reduce the amount of ships sailing the seas – although the shift will be gradual and slow.

"In the first stage, we are likely to see the growth in new-builds slowing down."

EMBRACE THE DIGITAL

Olli Kaljala from Bureau Veritas notes that the digital tools have already changed the way classification societies operate: Bureau Veritas, for example, has used Google glasses in support of auditing.

"Also, using drones to collect data from vessels is an efficient new tool," he says, adding that any new methods which bring speed and reliability into the over-all process are embraced by the classifiers.

"Looking at the marine industry, certainly everyone benefits when, for example, ship plans can be distributed digitally to a large group and commented easily within that group." Naturally, those plans are 3D: Kaljala believes that pretty soon all ships will originate as 3D models.

Maritime is also leaning heavily into the world of big data which means that the industry is eager to harvest the very best pieces of information – from the vast amount of data it is producing each year – and put them to good use. Kaljala believes that various data collection and analysis tools will continue to be developed and user experience will be a big driver in this process:

"Information should be readily available and accessible, or otherwise there won't be much use for it."

360° APPROACH TO SECURITY

Kaljala shares Rönnberg's concerns over cyber security: as all systems become electronic, there may be vulnerabilities that no one has really exposed yet. Kaljala points out that when various systems interconnect, the interface must be hack-proof:

"These link-ups have to be solid and secure in all conditions."

Talking about the emergence of autonomous ships, Kaljala comments that the entire field of global maritime is so vast, that the autonomous ship projects – as well as the plans for new ones – represent little more than a drop in the ocean.

"Nevertheless, the situation is developing all time, and it's something that classification societies have to deal with in the future. Cyber security onboard these vessels is obviously one key concern." ■

Profitable business from maritime digitalisation

by: MERJA KIHL AND ARI MONONEN

photos: LIISA TAKALA

With a long history of innovations and successes in the field of information and communication technologies, Finland is now gaining headway in maritime ICT solutions and digitalisation.

Making intelligent and productive use of high volumes of ship data and other available maritime information is the order of the day.

The utilisation of information and communication technologies (ICT) within the marine industries was highlighted in the MERIT project. It was started in November 2014, with the goal of promoting the Finnish marine cluster's competitivity and commercial potential.

The project was funded by the Ministry of Employment and the Economy in Finland and coordinated by the industry and trade office of the City of Helsinki.

According to schedule, the MERIT project was terminated at the end of 2016. Still, the market keeps demanding even further new maritime ICT applications.

"The aim of the MERIT project was to find ideas for new start-up companies. After all, the maritime industries consitute an increasing cluster that has a lot of potential for new applications," says Dr. Ulla Tapaninen, expert of maritime logistics for the City of Helsinki.

"SLUSH fair will carry on in MERIT's footsteps.

THE MERIT HERITAGE

According to Tapaninen, the MERIT project gathered speed as it proceeded onwards.

"Several new start-up companies were established in the maritime ICT sector. Furthermore, existing companies succeeded in expanding their product ranges and finding new customers and contacts," she points out.

After termination of MERIT, some queries have been made to participating companies to measure the initial results of the project. Obviously, many of the project's benefits will only be found out after a longer period of time.

"Already, approximately one third of the 150 companies that answered our query have been able to find new business partners for themselves," Tapaninen notes.

"The aim of the MERIT project was to find ideas for new start-up companies," says Dr. Ulla Tapaninen, expert of maritime logistics for the City of Helsinki. Photo from SLUSH fair 2016.

"The entire Finnish maritime cluster has been awakened to the dawn of digitalisation and ICT solutions – not just in the Helsinki region, but throughout the country. For instance, many companies situated around the city of Oulu in the north have been quite active in the MERIT project."

"While not restricted to marine innovations, the annual SLUSH fair will carry on in MERIT's footsteps, with the potential of becoming the new maritime ICT business forum. Also, EEX Maritime Oy has kept up encouraging maritime start-up companies and promoting technological innovations in the maritime industry."

NEW CHALLENGES FOR THE MARITIME CLUSTER

Dr. Tapaninen says that making use of big data – that is, huge volumes of telemetry data and other maritime information – is a crucial issue for future marine cluster business projects.

> **"Making use of big data is a crucial issue.**

"Transmitting various types of technical data via satellite from ships to shore for analysis has been quite expensive up to now. However, the costs of data transmission are lower these days. This makes it feasible to collect and analyse data, perhaps finding technical problems that can be repaired before they become serious. Also, ship-specific data is needed for new generations of remote-controlled and autonomous vessels," says Tapaninen.

"Such data can also be utilised for finding ways to improve the energy-efficiency of ships. This will result in ecological solutions. It will also save the shipping companies a lot of money." ■

Molslinjen's new vessel to feature hi-tech automation & safety systems

by: MERJA KIHL AND ARI MONONEN

photos: VALMET AUTOMATION

"The number of shipyard personnel will increase.

Rauma Marine Constructions Oy (RMC), a Finnish shipbuilding company, is building a 158-metre passenger and car vessel for the Danish shipping company Molslinjen A/S.

The ship will be equipped with advanced new-generation electrical and automation systems.

Shipbuilding work for the Molslinjen's RoPax vessel started at Rauma shipyard on the west coast of Finland in March 2017.

"At present, approximately 80 shipbuilders are assembling the ship's hull sections. The number of shipyard personnel will increase in the next couple of months, peaking at close to 500 in August and September," says Mr. Heikki Pöntynen, CEO of Rauma Marine Constructions (RMC).

"Already, we have hired more shipbuilding experts for the job, many of them having prior experience of working at Rauma shipyard."

The shipbuilding project will bring more than 1 000 man-years of work to Rauma shipyard.

RMC's Project Manager Timo Kaskinen notes that the keel laying of the new ship will take place in July.

"Waterbourne tests are scheduled to start in December 2017, with delivery expected in June 2018," he recounts.

The ship will start operating in commercial traffic in September 2018.

"Control automation is crucial for maintaing the onboard electrical power network frequency in all circumstances," explains Mr. Heikki Tanner, Sales Manager for Valmet's Automation Business Line in Tampere.

SHIPBUILDING WORK AHEAD OF SCHEDULE

According to Mr. Pöntynen, the ship will be a thoroughbred car & passenger vessel, with two car decks – totaling 1 500 line metres – and designed to carry 600 passengers in winter time and 720 passengers in summertime.

"While the ship has a traditional design, some of its technical systems will represent the latest in high technology. In particular, the ship is to become quite ecological and energy-efficient," he says.

"RMC has designed the basic concept for the ship, together with our cooperative partners Bluetech Finland and Deltamarin Oy."

"The ship will be equipped with 18 cabins for passengers and 12 cabins for the crew. Normally, the ship will be utilised as a short-distance ferry between Bornholm island in Denmark and the mainland."

The main engines will be two 4 880 kW Wärtsilä 31 diesel engines. Rolls-Royce will deliver rudders, axle rods and transmission gear.

Telesilta Oy, together with Valmet Automation, will supply the automation system for Molslinjen's new ship. Both companies have cooperated closely in many marine projects.

"The project is proceeding ahead of schedule," Mr. Pöntynen mentions.

VERSATILE ELECTRICAL SYSTEMS

Managing Director Kari Laulajainen of Telesilta Oy notes that electrical installa-

> **"The project is proceeding ahead of schedule.**

tions for the ship will commence in September or October 2017.

"Electrical design has been going on since the autumn of 2016," he says.

"The ship will be equipped with two shaft generators of 2 MW each, plus four 500 kW diesel generators."

One of the ship's safety systems will be a SRtP, Safe-Return-to-Port feature, allowing the ship to reach the nearset shore in case of engine failure. This will be possible with the help of the shaft generators that can be utilised as auxiliary electrical engines powering the ship's propellers.

"The ship will have a highly integrated navigation system, consisting of Furuno FAR-3000 series chart radars including Safe-Return-to-Port (SRtP) chart radar workstation, Furuno electronic chart ECDIS system, and Track Control autopilot. Furthermore, the ship will be fitted with water and satellite speed logs, echo sounder, dual gyro compass, dual DGPS and A1 GMDSS area equipment," Mr. Laulajainen explains.

For onboard electrical power, ABB Finland will supply 690-volt electrical distribution switchboards and related equipment. Promeco in Kankaanpää will supply the 400/230 VAC electrical switchboards.

"Overall, some 300 kilometres of electrical cable will be needed for onboard installation. Telesilta Oy will take part in the installation work, along with our cooperative partners," Laulajainen says.

AUTOMATION SYSTEMS FOR OPERATION AND SAFETY

Valmet will supply automation for Molslinjen's RoPax vessel. The delivery will take place in the fall of 2017.

The order was placed by Telesilta, a

Finnish marine electrical contracting company. Telesilta will also integrate Valmet's automation system into the other systems on the vessel.

"This type of arrangement is standard practice in networked shipyard installation projects. An integrator company works in close cooperation with the shipyard. In this particular case, Valmet Automation is in the role of subcontractor," explains Mr. Heikki Tanner, Sales Manager for Valmet's Automation Business Line in Tampere.

"Control automation is crucial for maintaing the onboard electrical power network frequency in all circumstances."

Valmet's delivery for the ship will include a Valmet DNA integrated automation system (IAS) to cover the control, alarm and monitoring of machinery systems. Additionally, the delivery includes training and commissioning.

"Some 300 kilometres of electrical cable will be needed.

Software programming will be finalised during the summer of 2017. The final product will feature a doubled automation system for maximum safety.

"In addition, Valmet will supply an information management system for the ship. It will be a Valmet DNA Operate Trend and Event Archive (TEA), an operator's tool and part of the system's features."

"In the near future, the number of similar types of RoPax ferries is expected to increase globally. Consequently, there may be further demand for advanced maritime automation systems for them," Tanner evaluates the market situation. ■

Demolition Man

SHIP DEMOLITION MAY EMERGE AS A VIBRANT NEW INDUSTRY IN EUROPE

by: SAMI J. ANTEROINEN

photos: TURKU REPAIR YARD LTD.

Ocean liners at the end of their lifecycle present a problem. Usually, these retired ships have found their way to India or Bangladesh, where they are demolished. However, workers' conditions are rarely as they should be – in fact, Global Trade Union group IndustriAll has called ship-breaking "the world's most dangerous job". Quite often, the demolishing sites are also ripe with environmental risks.

The Turku Repair Yard is Finland's only shipyard specialising in ship repair that is large enough for ship demolitions.

"IndustriAll has called ship-breaking 'the world's most dangerous job.'

The repair yard already has environmental certificates for ship repairs, but needs a few extra clearances to start demolitions.

> **"European ships will have to be demolished within the EU.**

The European Union is seeking to rectify the situation by mandating that ships that have sailed under EU Member State flags must undergo certified demolition – within the EU. A new EU Directive on the matter ensures that the demolition of ships is safe for both the environment and people. At the moment, however, no Member State has a permanent demolition site for ships longer than 100 metres.

The issue is not exactly a tiny one. Almost a thousand ocean liners – each ship weighing thousands of tonnes – are demolished every year world-wide. Up to 90% of the weight consists of ship steel and other materials that can be recycled. Following the demolition, the materials can be worth millions of euros.

"The Finnish maritime industry is a very well-functioning community," says Kim Kangas, Managing Director of Turku Repair Yard.

FINNOVATION IN THE WORKS

Finnish maritime industry is throwing its hat in the ring, since the local companies are able to demolish ships of all sizes in a way that is sustainable for the environment and people.

Funded by the Finnish innovation agency Tekes, a new undertaking – by the name of the Ship Recycling project – has set out to investigate how Finland could respond to this global challenge. The project consortium includes Turku Repair Yard Ltd, Meriaura Ltd, Delete Finland and Industrial and Ship Cleaning Services Hans Langh.

The Ship Recycling project aims to launch a genuine ship demolition industry in Finland. The creation of a such an industry would create new jobs in Finland and provide opportunities for subcontractors, too.

MAKE THE LIST

Under the new EU Directive, ships can only be demolished by parties that have been

accepted onto the EU's list of ship recycling facilities. For example, the demolisher must be certified to perform demolitions. The Turku Repair Yard is Finland's only shipyard specialising in ship repair that is large enough for ship demolitions, says Project Management Manager Oskari Kosonen from the Turku Repair Yard.

"We could take apart ships up to 260 metres long. We are applying for the necessary permits from the Finnish authorities, which will hopefully help us to get accepted to the EU's list of ship recycling facilities," Kosonen adds. The repair yard already has environmental certificates for ship repairs, but needs a few extra clearances to start demolitions.

On a typical year, the Turku Repair Yard handles the repair and maintenance of over 150 ships, ranging from tankers to passenger ferries. The biggest ships which have gone through the repair & maintenance process have been crude oil tankers.

HOMECOURT ADVANTAGE

Kim Kangas, Managing Director of Turku Repair Yard, says that if the EU holds firm in the matter – and the European ships will have to be demolished within the EU – there will be considerable business opportunities.

"The Finnish maritime industry, for example, is a very well-functioning community that could make it work."

Still, Kangas doesn't believe that the Finns are the "only game in town": other maritime players in other countries can participate easy enough, since demolishing in itself can be performed in various places around Europe.

"There have been ship demolishing operations in Denmark, for example, for quite some time," he says.

Nevertheless, as there are issues such as safety, environment and material-efficiency that will come to play here, Kangas believes that Finns have a great chance of performing well in the race.

DEMO FOR DEMOLISH

Currently, the Ship Recycling project is still in its planning phase and the hunt is on for a "demo ship" that will be demolished as a part of the project. Programme Manager Piia Moilanen from Tekes believes that the pilot demo ship will be found soon enough: the Turku Repair Yard could, conceivably get to work in demolishing the demo ship in October 2017.

According to Moilanen, the Ship Recycling project is a prime example of the way in which new environmental regulation creates new cleantech business opportunities in the sector.

"Demolition and recycling expertise could also contribute to sustainable shipbuilding," says Moilanen.

> **"The hunt is on for a 'demo ship.'**

OPPORTUNITY KNOCKING

Tekes has provided funding for ship demolition planning, via the Government's funding for key projects; such funding is allocated for demo projects in the bio, cleantech and digital sectors. Creating an entire new industry is an intriguing possibility, Moilanen comments.

"We expect that there will be various forms of expertise and solutions that emerge around the demolishing itself," she says, adding that the new know-how could have tie-ins to circular economy, sustainable ship planning and building as well as cutting-edge demolishing technology.

"We perceive that especially the multiplier effects can be scalable by nature." ■

Cruise ship ‘Mein Schiff 6’ delivered by Meyer Turku

by: MERJA KIHL AND ARI MONONEN

photos: TUI CRUISES GMBH

"'Mein Schiff 5' was four percent more energy-efficient than her sister.

Meyer Turku shipyard in southwestern Finland has delivered 'Mein Schiff 6' for Germany's TUI Cruises. The delivery took place on 9 May, 2017, with a ceremony at the shipyard.

Shipbuilding work for two further TUI cruise ships is now being stepped up at Meyer Turku shipyard. New deliveries are to be expected in 2018 and 2019.

The newly completed 'Mein Schiff 6' has 1 267 cabins and will carry 2 794 passengers on 15 decks. The ship has a crew of 1 024 persons.

With a length of 295 metres and a width of 36 metres, the new ship is a significant addition to TUI's fleet of cruise ships. TUI Cruises is a joint venture between TUI AG and the global cruise shipping line Royal Caribbean Cruises Ltd. The company was founded in April 2008.

"In fact, 'Mein Schiff 6' was the fourth ship built for TUI by the Turku shipyard," notes Mr. Tapani Mylly, Communication Manager for Meyer Turku.

"While the specifications of the ship are largely similar to those of the previously built cruise ships in this series, a number of small-scale technical improvements have been made. Advancements in our shipbuilding techniques have also made it possible to build the ship more efficiently and to further improve the finishing quality in comparison with the ship's predecessors."

Furthermore, the new ship has been designed to more stringent standards of energy-efficiency.

"We have been able to further hone the energy efficiency that has progressed throughout the series of Mein Schiff ships.

So, for example, 'Mein Schiff 5' was four percent more energy-efficient than her sister ship 'Mein Schiff 3'."

According to Mr. Mylly, this has been achieved by several small steps.

"This means optimatisations and small fixes to several ship functions and systems, from air conditioning to propulsion," he points out.

ATTENTION TO DETAILS AND ENERGY-EFFICIENCY

Meyer Turku shipyard has reported that in the case of 'Mein Schiff 6', one of the shipbuilding goals was to improve further from previous ships with certain fine-tunings based on passenger feedback.

For the purpose of added passenger comfort, the new ship has been furbished with 13 restaurants, plus various bars and cafés.

"Several of these restaurants are situated at the stern of the ship, on two glass-covered scenic Diamond decks," Tapani Mylly explains.

"For instance, the upper deck hosts the Steak House restaurant. Close to it, passengers will find two other high-class restaurants, one of them specialising in Austrian cuisine and the other in Japanese sushi meals."

The new cruise ship was delivered from Turku shipyard on schedule.

"In the course of the shipbuilding, Meyer Turku has acquired new know-how and expertise for the building of this kind of advanced and energy-efficient ships. We intend to use these new skills in our next shipbuilding projects," Mr. Mylly says.

"Many new shipbuilding experts will be needed.

TWO NEW CRUISE SHIPS UNDER CONSTRUCTION

First of all, the new projects of Meyer Turku will include TUI's New Mein Schiff 1 & 2. The agreement to build these two ships was signed in July 2015.

These two cruise ships are intended eventually to replace the older ships 'Mein Schiff 1' and 'Mein Schiff 2' that were built at Meyer Papenburg shipyard in Germany.

New Mein Schiff 1 & 2 will be longer than the previous ships, with a length of 315 metres. This lengthening will allow for a substantial redesign that gives the ships several new features and spaces. Both ships will house approximately 2 894 passengers.

In February 2017, the construction of these ships entered a next stage when the keel laying of New Mein Schiff 1 and the start of production of the New Mein Schiff 2 were celebrated in Turku.

The two cruise ships ordered in 2015 will be delivered in 2018 and 2019. They are practical examples of the recent production growth at Meyer Turku shipyard.

"In the late spring of 2017, the hull of New Mein Schiff 1 was already being assembled. The work for New Mein Schiff 2 was also being started, with the metal plates for the ship's hull all ready for shipbuilding work in the plate hall."

Right now, Meyer Turku has more than 3 500 shipbuilders at work. Of them, approximately 1 700 are Turku shipyard's permanent workers.

"Together with our marine cluster network, our shipyard already employs some 7 000 professionals. Many new shipbuilding experts will be needed by 2024 and quite a few in the near future. In the next two years, Meyer Turku will employ a minimum of 500 new shipbuilders," Mr. Mylly expects. ■

The new projects of Meyer Turku, TUI's New Mein Schiff 1 & 2 are intended eventually to replace the older ships 'Mein Schiff 1' and 'Mein Schiff 2.

Passenger comfort first aboard 'Tallink Megastar'

by: VERTTI KIVI & CO
photo: AS TALLINK GRUPP

With the aim of raising the profile of close-range travel, Tallink hired dSign Vertti Kivi & Co as the interior designers of the shipping company's new ferry in January 2015. The basis for the design concept was to be found in Tallink's passenger feedback and in future visions of ship travelling – visions combining relaxation, work, and culinary revelations to ideal shopping opportunities.

The point was to make even adult passengers face the joy of adventure and exploring, instead of being constantly weary of uneventful waiting onboard the ship.

As the designer in charge of the project, Mr. Samuli Hintikka – Head of Design for dSign Vertti Kivi & Co – chose 'Experiences First' as the main theme for the ship's design team.

Eventually, the design for the ship was to incorporate various types of oasis-like spaces optimised for different kinds of passenger profiles, with tantalising transitory sceneries in-between.

For maximum passenger comfort throughout the two-hour sea travel, particular attention was paid to creating highly interesting customer paths. Instead of lengthy corridors of standard shipbuilding custom, the deck plans were designed to include repeatedly crossing pathways. An enhanced impression of open space was created by utilising glass as bulkhead material.

Customers had wished for fewer cabins onboard, which meant that a larger-than-usual space could be reserved for restaurants. In addition to designing all seven of the ship's restaurants, dSign was responsible for the designs for the entrance lounge, children's playroom, and the Comfort and Business lounges.

In the case of the entrance lounge, the designers aimed at creating an atmosphere full of expectations and a sense of guiding the passengers onwards. An emphasis was set on lighting, as well as making the passenger flow smoother with the aid of deck-plan designs. The large-scale digital screens in the lounge can be utilised both for creating an atmosphere and for distributing information.

Identities that clearly differ from each other were created for the restaurants, facilitating the choice from the viewpoint of different types of menus.

Designed for the busy passengers, the *Fast Lane* restaurant has a light-toned, easy-to-reach street atmosphere, with colourful graphic-design carpets, signs with lighted letters, patterned tiles, and green plants refreshing the entire surroundings. Four separate colour themes are used for dividing the space.

Constructed with a sports theme, the ship's *Victory Bar* has an interior design that was built from a combination of classic

"Particular attention was paid to creating highly interesting customer paths.

> **Customers had wished for fewer cabins onboard.**

sports elements and robust trendy materials. Starring figures are a horse-shaped lighting fixture, space-dividing sporty cut-outs, and unique bulkhead lights of playful dimensions.

In addition to the restaurants and lounges in the service of all passengers, the ship has two separate premium lounge rooms – Comfort Lounge and Business Lounge – that charge an entrance fee. Separated from the normal pulse of the ship, the atmosphere of these spaces emphasises peaceful colour schemes and materials chosen for their sensitivity values. The surroundings have been spiced up with hexagon-based patterns.

The darker, pearly-gold interior of the Business Lounge has strong-lined vertical bar patterns, while the lighter-shade atmosphere of the Comfort Lounge has been brushed up with shiny silver details. Both of these spaces have special areas that have been optimised for work and for business meetings. The installation of Barrisol's shiny-surface ceilings makes the lounges appear loftier. In the choice of furniture, special attention has been paid to making the passenger's work smoother.

Along with business travellers, the ship design also takes the family travellers into account. The playroom for children has a strategic position on the vessel, next to the ship's most family-friendly restaurants and – in accordance with passenger feedback – also accessible directly from corridors, not just from the shop. The most family-friendly restaurants include *Fast Lane* and *Delight Buffet*, complete with table groups of children's dimensions. The vehicle deck can be accessed directly from the ship's shop.

Interior design for ships has some extra challenges, on account of strict safety regulations. Apart from their looks, pieces of furniture need to be selected on the grounds of their resistance to tilting, as well as their compliance with strict maritime fire-safety classifications.

In the final design, advantage has been taken of Finnish know-how. For instance, the unique lighting fixtures and fixed furniture were manufactured in Turku region, close to the shipyard. Further examples of unique design are seen in the flashy bulkhead-to-bulkhead carpets, with graphic patterns from dSign. The clear patterns and colours are important for spatial rhythmics. Carpet material is genuine wool, having the best tuft-carpet characteristics for withstanding wear and tear. Even with constant small-scale maintenance, the onboard interiors of ships tend to wear out at an average age of only five years. ■

Victory Bar has an interior design that was built from a combination of classic sports elements and robust trendy materials.

photo: Okko Oinonen

"Interior design for ships has some extra challenges.

photo: Okko Oinonen

Pearly-gold interior of the separate premium lounge room – Business Lounge – has strong-lined vertical bar patterns.

Designed for the busy passengers, the Fast Lane restaurant has a light-toned, easy-to-reach street atmosphere.

photo: Okko Oinonen

SPECIFICATIONS FOR MEGASTAR

- Route: Helsinki–Tallinn
- Duration of sea travel: 2 hours, at 27 knots
- Length: 212 metres
- Number of passengers: 2 800
- Largest shopping centre on the Baltic Sea: Traveller Superstore, 2 800 sq.metres
- 7 restaurants and cafés
- 1 970 line metres for cargo, 900 metres for passenger cars, and space for 100 vehicles accessible while at sea
- ship utilises LNG fuel technology
- built at Meyer Turku shipyard

New concepts for Polar ships to be expected from Aker Arctic

by: MERJA KIHL AND ARI MONONEN

New Finnish icebreakers represent top-notch high technology. Many of them have been designed especially for the demanding Polar operating conditions.

With a laboratory for ice model testing in Helsinki, Aker Arctic Technology Inc. has a long history of the development of the technology for ships to be used in challenging ice conditions. Some new concepts are again taking shape on the company's CAD screens and drawing boards.

New ships designed for arctic environments are in demand all over the world.

"Right now, Aker Arctic Technology is engaged in the preliminary design for U.S. Coast Guard's new icebreaker," Managing Director Reko-Antti Suojanen of Aker Arctic Technology Inc. says.

"The new ship will be needed to replace earlier USCG icebreakers that were built in the 1970s. What is needed is a large, powerful icebreaker with a high-grade ice class and superior icebreaking capabilities, complete with the latest hi-tech solutions."

"Possibly USCG will need three icebreakers of this type. They would probably be utilised both in Arctic and Antarctic conditions, e.g for making sure that the seaway to McMurdo ice station in Antarctica will remain open for ship traffic."

So far, not many details of the USCG project have been disclosed. It has been estimated that the length of the new icebreaker might be around 140 metres.

ECOLOGICAL SHIPS FOR ARCTIC REGIONS

Norway and Russia have made plans for utilising the natural resources in the Arctic regions.

"This may result in the need of new ships for arctic environments, perhaps for transporting raw materials from Arctic ports to the mainland. Korean shipyards are already building new gas tankers with icebreaking capabilities," Mr. Suojanen notes.

"Also, the tourist industry is finding the Arctic regions. Therefore, small-scale cruise ships that are compatible with new strict environmental regulations and capable of cruising in Arctic and Antarctic regions will probably be in demand in the near future. Aker Arctic Technology is currently developing new concepts for such ships, designed for 200 to 400 passengers."

According to Mr. Suojanen, Aker Arctic Technology Inc. now employs 52 professionals. All of them are specialised in the design of ships intended to be utilised in icy operating environments.

"One good example of Aker Arctic's recent achievements is the 'Polaris' icebreaker that was delivered in 2016. That ship had a new hull concept and a bow propeller – making a total of three propellers. This proved to be a good and efficient solution, improving icebreaking capacity. Furthermore, 'Polaris' is more environmentally-friendly than her predecessors," Mr. Suojanen maintains. ■

More information: www.akerarctic.fi

New approaches to sound and weight control

The requirements for the weight and sound control are under the loop. Ship-owners have higher expectations for comfort class and energy efficiency. This creates new challenges in to all project phases. With correct solutions it is possible to gain benefits in these challenges, both weight and sound. Saint-Gobain companies ISOVER and Weber solutions are both functional and certified for marine segment.

In new projects, every saved kilo is valuable. With ISOVER and Weber solutions the weight can be saved over 50% compared to conventional materials. With good design and execution, the project can save hundreds of tons in material weight. This saving can be utilized in the other project areas. Saint-Gobain's global approach drives the development of the new innovative solutions.

ISOVER solutions for insulation and sound reduction are widely used in ship building. U SeaProtect Slab and Roll are used for the sound reduction in the bulkheads and decks. They can also be used as an absorption material in flue gas dampers. SeaComfort CRoll and SeaComfort Roll are the right products for the sound and thermal insulation in HVAC. Climliner Slab is used for the internal and external sound dampening in the air conditioners. All products and solutions are tested and approved for the fire and sound properties in certified laboratories.

ISOVER has just launched a new SeaProtect db-Flex Alu product group, which is targeted for the extreme sound reduction needs. This solution can reach over 50 dB RW-value.

Weber has over one million square meter reference list on marine and offshore projects. This experience is combined to a strong research and development focus. Joint development projects with clients, have lead into a launch of the third generation light weight self-levelling screeds. With light weight screeds it is possible to gain weight savings in very cost effective approach.

Weber flooring solutions also bring alternative approaches to a sound control. Self-levelling screeds are highly valued in both new buildings as in repairs. The flooring solutions are tested by a third party institute for a confirmed performance. Solutions are tested for impact, airborne and structural sound properties. ■

More information: www.isover-technical-insulation.com, www.weber-marine.com

A BILLION AND A HALF DOLLARS INVESTED IN CRUISE SHIP MAKEOVERS DURING 2016

As we enter the second quarter of 2017, looking back at 2016 it is clear there is no stopping cruise lines as they schedule refurbishment of old ships, turning them into new, attractive vessels, through major makeovers which go way beyond traditional refits.

In the first six months of 2016, more than 40 ships – nearly 10% of the global fleet – underwent refits and refurbishments of varying scale and complexity representing a combined investment of $1bn. The recent Seatrade Whitepaper on Refurbishment of cruise ships in 2016 shows around $1.5bn was spent on refurbishment of cruise ships in 2016.

There is though, some seasonality to the process as cruise companies prefer to keep their ships operating through their peak third quarter. Where the work is being undertaken, what the scope of these major refurbishments is, and on what ships, can be found in this FREE whitepaper from Seatrade Cruise.

The recent Seatrade Cruise Whitepaper looks at how more shipbuilders – now in Asia as well as North America and Europe – are moving into the increasingly lucrative refurbishment sector. ■

You can download your copy today here: http://ubm.seatradecruiseevents.com/refurb-whitepaper-seatec-mag/

Door solutions for shipyard industry

Withstands ice, sand and wind

Sand and sweltering sunshine, shivering frost, ice and strong winds. Champion Door's door solutions for large sites are designed individually for each customer, and they are made to withstand the most demanding weather conditions.

Champion Door is a global supplier of door solutions who has sold doors in 40 different countries. The customers of the Finnish company represent a broad range of industries from shipyard industry, aviation to the mining industry. Champion Door customers include Meyer Werft, STX and Bilfinger among others.

"Intensive product development is totally necessary so that we can meet the customer's many and changing needs. For example, we are very proud of the tightness of the doors in this size category. In addition, we have developed hydraulic solutions with which we can ensure the doors opening in all conditions. One of the newest innovations is the Security Remote Control connection," Mika Hosio continues.

So that the customer can focus more effectively on their own core expertise, Champion Door offers their customers an expert maintenance service in addition to the door solutions. If necessary, Champion Door can train maintenance persons and the maintenance service works on a 24/7 principle.

The company's operations are guided by the ISO 9001-, ISO 14001- and the ISO 5001 standards certified by Lloyds. ■

More information: www.championdoor.com

Surface coatings for marine applications

by: MERJA KIHL AND ARI MONONEN

With production facilities in Vammala and Kiikka in Finland, Teknikum Oy is known as a designer and manufacturer of durable and tailored polymer technology products, with diverse applications in the marine and other industries.

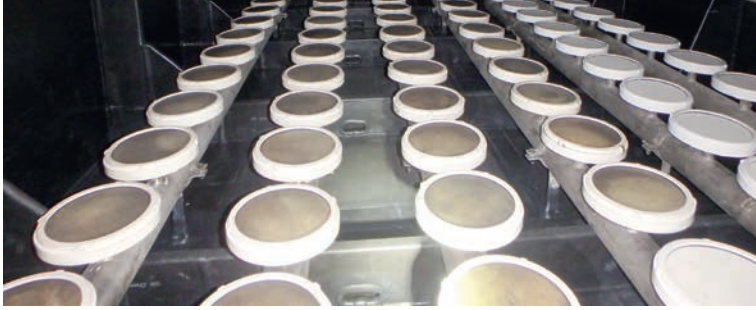
"Our new product applications include protective surface-coatings, such as anti-corrosion coating for tubings and tanks utilised in marine scrubbers for ship exhaust gas cleaning," says Mr. Mikko Esko, Account Manager for Teknikum Oy's Kiikka factory.

In the near future, quite a few marine scrubbers need to be installed aboard ships operating in the Baltic Sea and other regions, with the aim of reducing sulphur emissions.

"Teknikum has an extensive range of products and solutions related to protection from wear and corrosion. The coatings for tubes and other assemblies used in marine scrubbers are a brand new application."

EFFECTIVE PROTECTION

Similar technology has been successfully used since the 1990s in land-based exhaust gas scrubbers, e.g. for exhaust gas cleaning at power stations.



Rubber lining of scrubber bleed-off -tank.

"In the course of more than 20 years, durable surface-coating has proved to be effective in protecting the inside surfaces of tubings from corrosion and the adverse effects of very high temperatures," Mr. Esko notes.

"On-board installations of prefabricated surface-coated tubings for marine scrubbers have been supplied by Teknikum Oy since 2012. Positive feedback has been received as the coating has effectively resisted corrosion from seawater chlorides and sulphuric acids."

"One of the first of such installations was the marine scrubber installed onboard the cruise ship 'Mein Schiff 3' built at Turku shipyard."

According to Mr. Esko, Teknikum Oy has paid particular attention to product quality, efficient production, and high-quality customer service. The business group has currently some 300 employees in Finland and an annual turnover exceeding 30 million euros. ■

More information: www.teknikum.com

Fresh Air on board FläktGroup

Fläkt Woods and Denco Happel combining forces for wider scope and better service in marine ventilation solutions

FläktGroup is the new European market leader for energy efficient Indoor Air Technology Solutions, providing our Customers with the highest quality standards for improved Air Comfort and well-being.

As a result of the merger between the two ventilation technology companies, the Fläkt Woods offerings of ventilation equipment and services for marine applications just got better. The already extensive Fläkt Woods product portfolio is now further extended with the products from the German company Denco Happel, thus we are now able to supply also our own chillers, chilled beams and fan coil units for marine applications. Additionally, combined R&D resources and know-how enable us to better and quicker react to our customers' needs for product improvements and innovations. Today, especially important is the improved energy efficiency of the ventilation equipment and thus we are now developing our new Air Handling Unit, EQ Marine, featuring a simple and rigid construction combined with high energy efficiency through optimized energy recovery and controls. ■

More information: flaktwoods.com

Metalliasennus Huuhka Oy chosen as supplier of the year for Meyer Turku

Meyer family shipyards have rewarded suppliers first time together. Supplier of the year 2016 for Meyer Turku was Metalliasennus Huuhka Oy.

"We have been working together with Metalliasennus Huuhka Oy for 27 years. They welcome challenges and they are always prepared to innovate and to solve any problems we are facing. Huuhka also has a well working and versatile organization," Meyer Turku justifies the choice.

Supplier of the year is a tradition for Meyer family in Papenburg – a tradition that was now for the first time also extended to Meyer Turku. The celebration was held in Logomo arena, Turku. Among the people celebrating the event were invited guests from all of the Meyer shipyards and maritime experts from both Finland and Germany.

Network of suppliers is a valuable resource for the shipyards. Suppliers provide for example machinery for the ships, components to the construction and they also participate into the construction of cruise ships together with Meyer employees. Meyer Turku has at the moment some 2000 active companies in the network, out of these approximately 800 different companies take part into individual ship projects.

CEO of Metalliasennus Huuhka Oy Pertti Huuhka is thankful for the acknowledgement.

"All of us at Huuhka are grateful for this acknowledgement. I want to thank Meyer family for making all of this possible," Huuhka thanks.

Suppliers of the year for the other Meyer family shipyards were also announced at the gala together with Partner of the year reward.

Meyer Partner of the Year 2016: Blücher Metal A/S

Meyer Werft supplier of the year: D-I -Davit International Hische GmbH

Neptun Werft supplier of the year 2016: Marine Glazing Brombach + Gess GmbH & Co.KG ■

More information: www.meyerturku.fi

company directory

photo: AS Tallink Grupp

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Facts & Figures
Turnover: EUR 8,6 million
Personnel: 15
Established: 1987

Specialty Areas
Steel and Aluminium structures
Shipbuilding – Shiprepairing – Conversions – Outfitting
LifeCycle Services
Large capacity

1 2

ACM-TRADING LTD

Ketunleivänkuja 4
FI-21110 Naantali, Finland
Phone +358 20 799 1400
Fax +358 20 799 1409
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www.acm-trading.fi

Contact Person
Kari U. Laiho

Specialty Areas
Complete PUSHPIN®-ATB-Coupler System for Pusher Tug and Barge combinations. Available models 2 or 3 pin executions, with electro-pneumatic or electro-hydraulic controls with modern PLC controls. New Model! PUSHPIN®-SliderRig – Coupler enabling to be engaged during loading and discharging. Pin forces from 150 Tons up to 3 000 Tons, from River ATBs to Large Offshore ATBs, 15 systems in service. Concept design, Feasibility Studies and total installation engineering and supervision including class approvals with FEM-analysis. Electro-Hydraulic EHS Actuators for valve control and remote sounding systems with total BUSLoop systems for all kind of vessels. Cooling control systems for HT-, LT-, LO-, SW- etc. cooling circuits. Marine Pumps, Marine Butterfly valves in house already over 40 years experience.

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See page 44 and 21.

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Facts & Figures
Turnover: EUR 10 million
Established: 2005

Specialty Areas
Aker Arctic Technology Inc (Aker Arctic) is an independent company specialising in the development, design, engineering and testing services for the ice going vessels, icebreakers and offshore marine structures and ports. Our head office is located in Helsinki, Vuosaari Maritime Business park area. The past references include 60 per cent of all the world's icebreakers, many Arctic or Antarctic research vessels and quite a number of different types of cargo vessels and concepts of offshore structures.

4 7

ASLEMETALS OY

P.O. Box 17
FI-26101 Rauma
Finland
Phone +358 2 838 011
Fax +358 2 838 0290
firstname.lastname@aslemetals.fi
www.aslemetals.fi

Contact Person
Saku Tuominen
Business Director
saku.tuominen@aslemetals.fi

Specialty Areas
Aslemetals can carry out turnkey deliveries from planning to installation. Shipbuilding (length till 84m), pipemodules, machine rooms, steel constructions etc. Careful planning, preparations and our experienced personnel enable efficient deliveries.

1 9

See Back Cover.

BUREAU VERITAS

Sörnäistenrantatie 29
FI-00500 Helsinki
Finland
Phone +358 10 830 8630
helsinki@fi.bureauveritas.com
www.bureauveritas.com
www.veristar.com

Contact Person
Olli Kaljala
Chief Executive
olli.kaljala@fi.bureauveritas.com

Facts & Figures
Personnel: 50
Established: 1984 (Finland)
Parent Company: Bureau Veritas SA (est. 1828)

Specialty Areas
Survey of ships & ship equipment, classification of newbuildings
Inspection of industrial products & goods for international trade
Certification of management systems against international standards

4

CAVERION, INDUSTRIAL SOLUTIONS

P.O. Box 27 (Lemminkäisenkatu 59)
FI-20521 Turku
Finland
Phone +358 10 4071
firstname.lastname@caverion.com
www.caverion.fi

Contact Person
Marine business unit
Markku Salonen
markku.salonen@caverion.com

Facts & Figures
Turnover: EUR 330 million approx.
Personnel: approx. 3 000
Established: 2013
Parent Company: Caverion Oyj

Specialty Areas
Marine Industry unit:
Electrical and mechanical outfitting projects
Turnkey deliveries for technical areas
Prefabricated pipes, pipe-packages and process modules

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

9

ENSTO ITALIA

Saves Your Energy

Via F. De Filippi 3
IT-20129 Milano
Italy
Phone +39 02 2940 3084
Fax +39 02 2952 4554
enstoitalia@ensto.com
www.ensto.com

Contact Person
Guglielmo Rutigliano
Sales Director
guglielmo.rutigliano@ensto.com

Facts & Figures
Turnover: EUR 260 million
Personnel: 1 600
Established: 1958
Parent Company: Ensto Group

Specialty Areas
Ensto's marine lighting products are designed for ship installations and can be customised to Customer's needs.

5

EXIT-PAINIKE KY

P.O. Box 78
FI-61801 Kauhajoki
Finland
Phone +358 6 231 4034
Fax +358 6 231 4112
exitpainike@exitpainike.fi
www.exitpainike.fi

Contact Person
Timo Hakala

Specialty Areas
EXIT 6000 series emergency doors. EXIT panic device

2

HOLMET OY

Keskikankaantie 27
FI-15860 Hollola
Finland
Phone +358 40 769 8347
info@holmet.fi
www.holmet.fi

Contact Person
Jesse Kiuru

Facts & Figures
Turnover: EUR 3-5 million
Personnel: 50
Established: 2004

Specialty Areas
Steel doors and hatches for ships, as well as those made of stainless steel and aluminium. Hydraulically operated hatches. Bolts, clamp devices, and other ship accessories. Our skilled personnel will carry out versatile projects of design, acquisition, laser cutting, edging, welding, surface-finishing and installation, having decades of experience in this line of business.

1 3 8

JTK POWER OY

Teollisuustie 6
FI-66600 Vöyri
Finland
Phone +358 20 781 2300
Fax +358 6 361 0383
info@jtk-power.fi
www.jtk-power.fi
www.jtk-power.cn

Contact Person
Timo Viitala
Managing Director
timo.viitala@jtk-power.fi

Facts & Figures
Turnover: EUR 22 million
Personnel: 86 in Finland, 20 in China
Established: 1998

Specialty Areas
Large Diesel and Gas engines exhaust and intake silencers. Offshore-, paper- & pulp and other process industries large silencers. Also Valve seat inserts are manufactured for exhaust and intake valves, of both large and small diesel engines.

2 7

See page 29.

JUKOVA CORPORATION OY

Jukovantie 20
FI-21430 Yliskulma
Finland
Phone +358 10 474 444
Fax +358 10 474 4290
jukova@jukova.com
www.jukova.com

Contact Person
Stefan Sundblom
stefan.sundblom@jukova.com

Specialty Areas
Modular balconies
Sliding doors
Balcony divider walls
Glass railings

7

KAEFER OY

Lehtimäentie 17
FI-21290 Rusko, Finland
Phone +358 2 437 9400
Fax +358 2 438 6692
kaefer@kaefer.fi
www.kaefer.fi

Contact Person
Janne Sirviö
janne.sirvio@kaefer.fi

Facts & Figures
Turnover: EUR 33 million
Personnel: 75
Established: 1977
Parent Company: KAEFER GmbH

Subsidiaries & Representatives
KAEFER GmbH

Specialty Areas
Interior outfitting in passenger vessels
All type of insulation solutions in marine industry

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

3 4

KESKIPAKOVALU OY

Lastikankatu 21
FI-33730 Tampere
Finland
Phone +358 3 357 9000
Fax +358 3 364 5964
info@keskipakovalu.fi
www.keskipakovalu.fi

Contact Persons
Kimmo Markkula
Keijo Koivisto
Asmo Rantanen
Risto Rönkkä

Facts & Figures
Turnover: EUR 4,3 million
Personnel: 32
Established: 1956

Specialty Areas
Bronze parts of diesel engines
Bronze parts of propulsion machinery
Bronze parts of maneuvering machinery

2 6 7

KOJA MARINE

P.O. Box 351 (Lentokentänkatu 7)
FI-33101 Tampere
Finland
Phone +358 3 282 5111
marine@koja.fi
www.koja.fi

Contact Person
Esko Nousiainen, Director
esko.nousiainen@koja.fi

Facts & Figures
Turnover: EUR 60 million
Personnel: 232
Established: 1935
Parent Company: Koja Group

Specialty Areas
Air conditioning systems, air conditioning units
System design and material delivers
Cargo ventilation systems
Air Conditioning turn-key deliveries, HVAC electrical / automation systems

3 9

LAIVAKONE OY

Uranuksenkuja 1 C
FI-01480 Vantaa
Finland
Posenerstr. 1 a
D-23554 Lübeck
Germany

Phone +358 20 763 1570
Fax +358 20 763 1571
laivakone@laivakone.fi

Contact Person
Harri Elonen

Facts & Figures
Personnel: 20
Established: 1969

Specialty Areas
Ship engine repairs and services
In-Situ machining

4

OY LAUTEX AB

Ojakkalantie 13
FI-03100 Nummela, Finland
Phone +358 9 224 8810
sales@lautex.com
www.lautex.com

Contact Persons
Sami Leinonen, Sales Director
sami.leinonen@lautex.com, Phone +358 40 842 4020
Antti Holappa, Sales Manager
antti.holappa@lautex.com, Phone +358 50 386 1213

Facts & Figures
Turnover: EUR 8 million
Personnel: 60
Established: 1951
Parent Company: Teknoma Oy

Specialty Areas
Ceilings for ship accomodation and public spaces, such as metal panels, profiles, tiles and gratings in aluminium or steel. The product range includes also B-0 and B-15 fire classified ceilings, domes, beams and special ceilings. All ceiling materials are possible to coat on different materials.

1 2 9

OY LINDAB AB

Juvan teollisuuskatu 3
FI-02920 Espoo, Finland
Kankitie 3, FI-40320 Jyväskylä, Finland
Phone +358 20 785 1010
www.lindabmarine.com

Contact Person
Piia Kyrönlahti, +358 20 785 1010

Facts & Figures
Turnover: SEK 7 589 million (2015, Lindab Group)
Personnel: 5 100 (Lindab Group)
Established: 1959

Specialty Areas
Insulated and non-insulated ducts and fittings
Acoustic solutions
Bulkhead penetrations
Dampers and measuring units
Air terminals
Fans
Lindab develops the most innovative and simplified solutions on the market. Our energy effective solutions will change the way of designing ships and brings the best indoor climate onboard.

1

LLOYD'S REGISTER EMEA

Aleksanterinkatu 48 A
FI-00100 Helsinki
Finland
Phone +358 20 791 8300
helsinki@lr.org
www.lr.org

Contact Persons
Päivi Björkestam
Field Operation Manager
Niklas Rönnberg
Business Development Manager

Facts & Figures
Personnel: 25
Established: 1957 (Finland)
Parent Company: Lloyd's Register Group Limited

Specialty Areas
Ship and offshore:
Newbuilding & periodical surveys
Industrial inspections and certification
Consultancy

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

2 3 6 7

MARINE DIESEL FINLAND OY

Eteläkaari 10
FI-22420 Lieto
Finland
Phone +358 20 510 6900
Fax +358 2 253 9121
marine.diesel@wihuri.fi

Contact Persons
Markus Hjerppe
Mika Aaltonen

Facts & Figures
Personnel: 40
Established: 1992

Specialty Areas
Main- and auxiliary engine repair and service
Total overhaul of all type of engines
Turbocharger service and repair
On-site machining
Conservation works after engine room fire or flooding
Well-equipped workshop in Lieto
CAT authorized service and repair, Kemel seals and bearings

3

OILON OY

P.O. Box 5
FI-15801 Lahti
Finland
Phone +358 3 857 61
Fax +358 3 857 6239
www.oilon.com

Contact Person
Jani Kurikka
jani.kurikka@oilon.com

Facts & Figures
Turnover: EUR 70 million
Personnel: 360
Established: 1961

Specialty Areas
Oil & gas burners for marine applications

4

ONNINEN OY

P.O. Box 109
FI-01301 Vantaa
Finland
Phone +358 20 485 5111
Fax +358 20 485 5500
www.onninen.fi
www.onninen.com

Contact Person
Martti Lehti
Area Sales Director
martti.lehti@onninen.com

Facts & Figures
Personnel: 3 000
Established: 1913

Specialty Areas
Onninen provides comprehensive materials services to contractors, industry, public organisations and technical product retailers. Onninen is member of Kesko Group. We have 3 000 employees in our Finnish, Swedish, Norwegian, Polish, Russian and Baltic operations.

PARAMET KONEPAJA OY

Saaristotie 1142
FI-21601 Parainen
Finland
Phone +358 207983939
www.paramet.fi

Contact Person
Tommi Lahdensivu
Managing Director
tommi.lahdensivu@paramet.fi

Facts & Figures
Turnover: EUR 15 million
Personnel: 65
Established: 1988

Specialty Areas
Manufacturing of high quality steel structures. 16 000 m² facilities including one of the largest welding robots in Finland, harbor and professional people at your service.

4

PAROC OY AB

P.O. Box 240
FI-00181 Helsinki
Finland
Phone +358 46 876 8000
technical.insulation@paroc.com
www.paroc.com

Contact Person
Tommi Siitonen
tommi.siitonen@paroc.com

Facts & Figures
Turnover: EUR 410 million
Personnel: 1 945
Established: 1952
Parent Company: Paroc Group Oy Ab

Subsidiaries & Representatives
Paroc operates in 14 European countries.
Please visite our website www.paroc.com for more information.

Specialty Areas
Stone wool insulation products for fire, heat and sound insulation to shipbuilding and offshore industries

2 3

PATRIA AVIATION ENGINE BUSINESS UNIT

Linnavuorentie 2
FI-37240 Linnavuori
Finland
Phone +358 40 869 2800
Fax +358 20 469 2801
www.patria.fi

Contact Person
Seppo Tamminen
General Manager, Diesel Engine Business
seppo.tamminen@patria.fi

Facts & Figures
Turnover: EUR 25 million
Personnel: 195
Established: 1947
Parent Company: Patria Oyj

Specialty Areas
Maintenance and overhaul of high speed diesel engines and related equipment up to 6 000 kW
Authorised MTU Service dealer
Maintenance and overhaul of industrial and marine gas turbines
Special repairs of parts for diesel engines and gas turbines

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

9

PEDRO OY

Tehdastie 4-6
FI-15560 Nastola
Finland
Phone +358 3 873 900
Fax +358 3 873 9010
www.pedro.fi

Contact Person

Juha Lehtonen
Managing Director
juha.lehtonen@pedro.fi

Facts & Figures

Established: 1988

Specialty Areas

PEDRO has expertise for 28 years of furniture to luxury cruisers, hotels and homes.

3

PKP-MACHINING

Koukkarintie 3
FI-21870 Riihikoski
Finland
Phone +358 40 7253 656
sales@pkp-machining.fi
www.pkp-machining.fi

Contact Persons

Antti Satila, Managing director
antti.satila@pkp-machining.fi +358 40 7253 656
Ari Pirinen, Production engineer
ari.pirinen@pkp-machining.fi +358 44 7253 657

Facts & Figures

Personnel: 15
Established: 1998

Specialty Areas

Turnkey deliveries of components including welding, machining and surface treatments
CNC boring of large pieces, milling and deep-hole drilling
Extensive competence in machining various materials: stainless and acid-proof steel, copper, aluminium and wear-resistant grades of steel

2 6 7

PMC HYDRAULICS

www.pmchydraulics.com

Specialty Areas

PMC Hydraulics is the Nordic leader in innovative hydraulic solutions and services for marine applications. By providing everything from customized systems to components, special products and a full range of maintenance and lifecycle services we have the ability to offer our customers the best complete solutions.

2 9

POCADEL OY

Korpelantie 229
FI-21570 Sauvo
Finland
Phone +358 2 477 2950
pocadel@pocadel.fi
www.pocadel.fi

Contact Person

Miikka Ahlfors
miikka.ahlfors@pocadel.fi

Facts & Figures

Personnel: 15
Established: 1997

Specialty Areas

Fire rated B15 – A60 glass doors and partitions for marine and Offshore use:
Renewed product category includes fire rated glass walls, hinged doors, Super wide Tandem Doors and Butt Joint walls

2 7

PORKKA FINLAND OY

P.O. Box 127
FI-33101 Tampere
Finland
Phone +358 20 555 512
Fax +358 20 555 5288
www.porkka.fi

Contact Person

Petri Hiilloste
porkkapanel@huurre.com

Facts & Figures

Turnover: EUR 26 million
Personnel: 170
Established: 1962
Parent Company: Huurre Group Oy

Specialty Areas

Provision stores
Walk-in rooms in galleys/pantries
Insulated doors
Insulated fire doors A60, for cold stores

7

RAUMA INTERIOR OY

Hallitie 8
FI-26510 Rauma
Finland
Phone +358 2 8387 8200
info@raumainterior.fi
www.raumainterior.fi
www.messin.fi

Contact Person

Kari Wendelin
Managing Director
kari.wendelin@raumainterior.fi

Specialty Areas

Designed fixed and free-standing furniture in various materials especially for passenger & crew cabins, but also for restaurants, nightclubs, coffee shops, conference rooms (wardrobes & racks, dressing tables, cabinets, coffee tables, desks, TV-stands, beds in wood and metal, nightstands, sofas, resin coated dining tables, bardesks, decorative columns etc.)

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

2

ROLLS-ROYCE OY AB

P.O. Box 220
FI-26101 Rauma
Finland
Phone +358 2 837 91
rolls-royce.finland@rolls-royce.com
www.rolls-royce.com/marine

Contact Person
Liisa Snellman
Communications
liisa.snellman@rolls-royce.com

Facts & Figures
Turnover: EUR 468 million
Established: 1988
Parent Company: Rolls-Royce plc

Subsidiaries & Representatives
Rolls-Royce worldwide sales and service network

Specialty Areas
Thrusters, propulsion systems, winch systems, stabilizers, steering gears, bearings

7

S.A. SVENDSEN OY

Särkiniementie 3 B
FI-00210 Helsinki
Finland
Phone +358 9 681 1170
Fax +358 9 6811 1768
www.sasvendsen.com

Contact Person
Kimmo Räisänen
Managing Director
kimmo.raisanen@sasvendsen.com

Facts & Figures
Turnover: EUR 15,7 million
Personnel: 5
Established: 1981

Specialty Areas
Complete turnkey deliveries for cruise ships and ferries
Interior materials and custom made interior modules
Refurbishments and refits for cruise ships and ferries

2 4 9

SBA INTERIOR LTD

Hållsnäsintie 99
FI-10360 Mustio, Finland
Phone +358 19 327 71
sales@sba.fi
www.sba.fi

Contact Persons
Thomas Pökelmann, Sales Manager
thomas.pokelmann@sba.fi
Johan Fagerlund, Technical Director
johan.fagerlund@sba.fi

Facts & Figures
Turnover: EUR 14 million
Personnel: 95
Established: 1985

Specialty Areas
SBA Interior is specialised in accommodation panelling and different types of beds for marine applications.
Latest development is an only 16mm B-0 class and a 50 mm A-60 class light weight box; wall and ceiling as well as a B-15 class Extension Screen.
Another branch of SBA is subcontracting for metal industry.

1 2 7

SEAKING LTD

Valimotie 13b B, FI-00380 Helsinki, Finland
Phone +358 9 350 8840
Fax +358 9 3508 8422
sales@seaking.net

Contact Person
Pasi Suvanto, VP Sales, pasi.suvanto@seaking.net

Facts & Figures
Personnel: approx. 350
Established: 1985
Parent Company: SeaKing International AG

Subsidiaries & Representatives
SeaKing France, SeaKing GmbH, SeaKing Italy, SeaKing Poland, SeaKing Inc.

Specialty Areas
Established in 1985, SeaKing is the Industry's leading provider of functional catering systems to cruise liners and other high-class passenger vessels. SeaKing supports its customers throughout the ship's life cycle with basic design, consulting, equipment deliveries, training, maintenance and upgrading of the catering systems. SeaKing has a large production facility in Poland specialised in stainless steel (including refrigerators, service counters, ventilation hoods and pre-fabricated pantries) and a second production facility in Ft. Lauderdale, aimed at responding to the Industry's growing renovation and repair activities.

7

SEASIDE INDUSTRY PARK RAUMA

Suojantie 5
FI-26100 Rauma
Finland
www.seasideindustry.com

Contact Person
Timo Luukkonen
timo.luukkonen@seasideindustry.com
+358 40 550 1942

Specialty Areas
Seaside is resource-efficient industrial park of heavy metal industry with supreme logistics including a deep-water route, port, railway and road. Successful principal companies with efficient and wide delivery network operate in the Park. The area utilises versatile infrastructure and comprehensive common services. Seaside offers an efficient manufacturing and cooperation environment enabling smaller companies to participate in large projects and achieve competitive advantages and additional value. Additional information: www.seasideindustry.com

9

OY SIKA FINLAND AB

P.O. Box 49
FI-02921 Espoo
Finland
Phone +358 9 511 431
Fax +358 9 5114 3300
sika.finland@fi.sika.com
www.sika.com

Contact Person
Kai Winqvist
Industry Manager
winqvist.kai@fi.sika.com

Facts & Figures
Turnover: EUR 31,5 million (2015)
Personnel: 47
Established: 1985
Parent Company: Sika AG

Specialty Areas
Sealing – Bonding – Acoustic Damping – Reinforcing - Protecting

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

3

STEERPROP LTD

P.O. Box 217
FI-26101 Rauma
Finland
Phone +358 2 8387 7900
Fax +358 2 8387 7910
steerprop@steerprop.com
www.steerprop.com

Specialty Areas
Azimuth Propulsors for demanding applications. Steerprop Ltd. combines the reliability of proven technologies with the efficiency of modern design to produce azimuth propulsors of exceptional quality and excellent reliability. Steerprop Azimuth Propulsors can be made up to 20 MW in power or even in the most stringent ice-classes.

2

TEBUL OY

Luumäentie 2
FI-21420 Lieto
Finland
Phone +358 50 540 6031
Fax +358 2 489 9299
sales@tebul.fi
www.tebul.fi

Contact Person
Jussi Uusitalo
Managing Director
sales@tebul.fi

Specialty Areas
TEBUL OY has been designing and manufacturing watertight bulkhead sliding doors since 1961. Our self-tightening 24VDC fully electric watertight bulkhead sliding door is a fourth-generation product. The primary self-tightening is based on metal to metal contact with rubber seals for initial tightening. The higher the pressure, the larger the force exerted on the door. Tebul doors are approved to be installed into A-60 bulkheads.
Tebul doors are available also in the Eex-version, for Explosion Hazardous areas.

2 3 9

TEVO OY

Hiientie 17
FI-92160 Raahe
Finland
Phone +358 8 265 8800
Fax +358 8 265 8805
tevo@tevo.fi
www.tevo.fi

Contact Persons
Timo Norvasto, Sales Manager, Lokomo Steel
timo.norvasto@tevolokomo.fi
Ari Viinikkala, Deputy MD, Bronze foundry
ari.viinikkala@tevo.fi
Pekka Launonen, Dir. Engineering Works
pekka.launonen@tevo.fi

Facts & Figures
Turnover: TEVO 21 MEUR, Lokomo 30 MEUR
Personnel: TEVO 120, Lokomo 130
Established: TEVO 1974, Lokomo 1915

Specialty Areas
Manufacturing and Service of Marine Propellers in steel and bronze
Offshore steel constructions and special welding

2 4

TRAFOTEK OY

Kaarinantie 700
FI-20540 Turku
Finland
Phone +358 2 275 9200
Fax +358 2 275 9210
info@trafotek.fi
www.trafotek.fi

Contact Person
Timo Heikkinen
timo.heikkinen@trafotek.fi

Facts & Figures
Turnover: EUR 60 million
Personnel: 400
Established: 1983

Specialty Areas
Ship and offshore transformers up to 12 MVA
Electrical filters and reactors

8

UUDENKAUPUNGIN TYÖVENE OY

Telakkatie 8
FI-23500 Uusikaupunki
Finland
Phone +358 2 846 4600
Fax +358 2 841 4347
tyovene@tyovene.com
www.tyovene.com

Contact Person
Juha Granqvist

Facts & Figures
Turnover: EUR 30 million approx.
Personnel: 80
Established: 1987

Specialty Areas
Building of aluminium workboats, such as Pilot Cutters, Oil Combat Vessels, Service Ships for Channels
Building of small steel vessels, such as Road Ferries, Offshore Patrol Vessels, Passenger Vessels for commuter traffic

4

OY VALLILA CONTRACT AB

Nilsiänkatu 15
FI-00510 Helsinki
Finland
Phone +358 20 776 7700
Fax +358 20 776 7701
projekti@vallilainterior.fi
www.vallilainterior.fi

Contact Person
Miku Berner
miku.berner@vallilainterior.fi

Facts & Figures
Turnover: EUR 37 million
Personnel: 135
Established: 1935

Specialty Areas
Textile design
Textile full turnkey solutions, measuring, sewing, installation
All system solutions, electrical and manual
Large collections on Imo certified fabrics

1. Consulting
2. Equipment
3. Machinery
4. Materials
5. Safety
6. Systems
7. Turnkey Deliveries
8. Yards
9. Other

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ılsion all about maritime industry systems engines systems
s audio and video systems communication equipment lightnin
vigation ship management systems ship operation and automa
ering educatic software prod
and ventilatic ems environme
ne extinguishi systems wire
s & fittings i urnishing & f
s new all abou fit repairs t
ystems materia arine technol
ghtning systen ology monitor
omation systen ion design an
oducts survey ipment air-co
ntal technolog ystems pumps
e & cable ship rs and window
floor coverir terials shipb
prime movers about maritim
nology electro mmunication e
ing systems r ms ship opera
and engineering education and research interior design so
ditioning and ventilation cleaning systems cooling systems
safety & fire extinguishing systems waste & waste water s
all about maritime industry furnitures & fittings insulat
d ceiling materials shipbuilding yards new building refit

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