



The superioHUB® solution from Loisto is used in cabin automation solutions in private yachts such as Ulysses.

PC-based control is driving innovative and sustainable solutions in shipbuilding

Modular control technology is helping enhance efficiency and comfort in yacht and cruise ship cabins

Loisto Pro Oy, headquartered in Turku, Finland, is a systems integrator with 20 years' experience in the shipbuilding sector. The company specializes above all in smart cabin automation solutions and lighting installations for yachts and cruise ships. Loisto's innovative solution superioHUB® is for better energy efficiency, easier commissioning and maintenance, and greater passenger comfort. Modular PC-based control technology from Beckhoff perfectly complements the system entity.

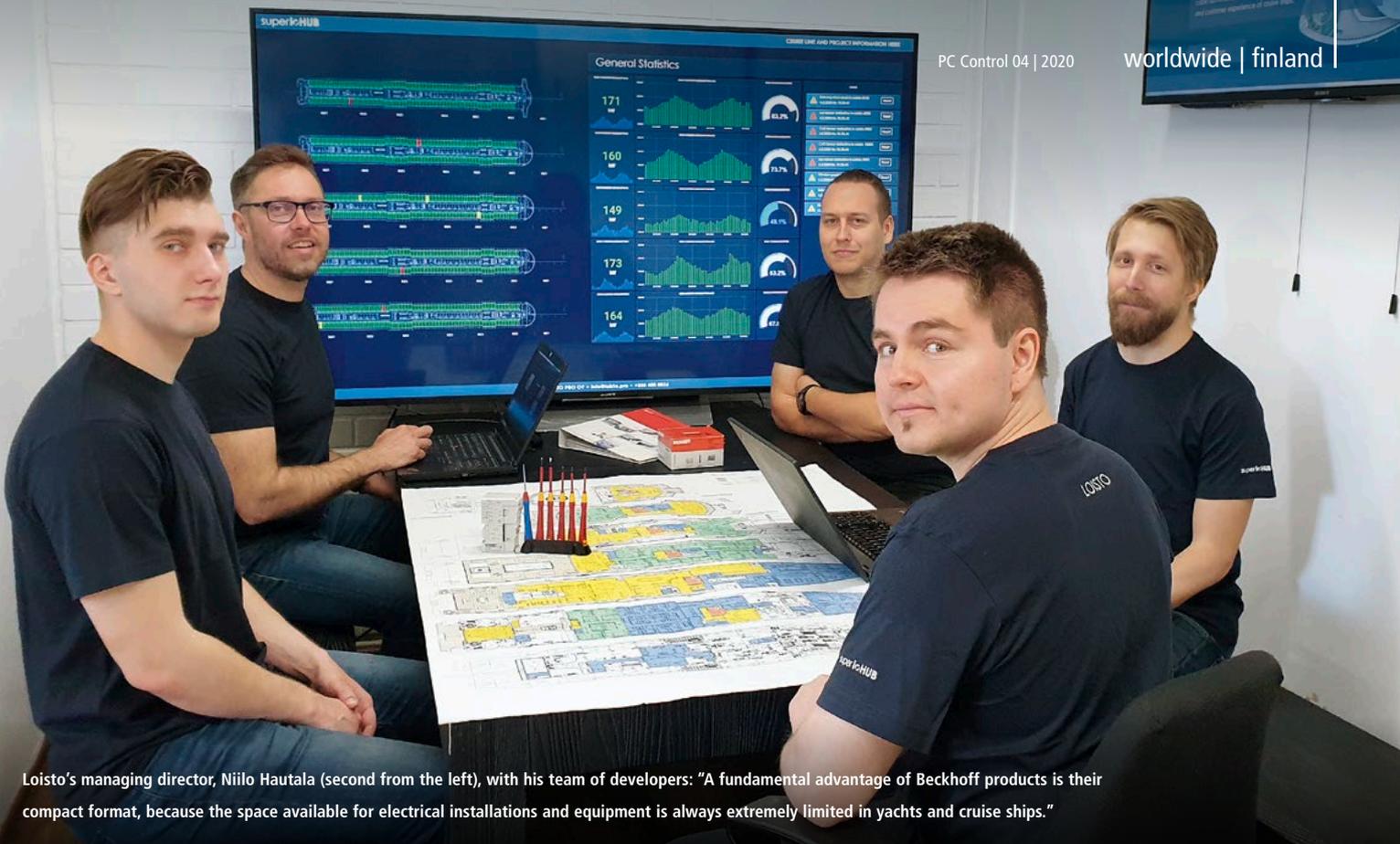
For efficient shipbuilding and due to the trend towards smaller, yet more luxurious yachts, shipyards and ship operators must increasingly implement new technologies and approaches, both in production and in operations. For instance, the industry is looking at ways to accelerate and simplify the commissioning process once the construction phase is complete. And when it comes to operations, the focus is on energy efficiency, ease of maintenance and enhanced passenger comfort.

It is in this latter area that Loisto has worked closely with shipyards and ship operators for several years now, both in a consulting role and on numerous actual projects as a specialist for sophisticated technological solutions in the fields of lighting, AV integration and cabin automation. Says managing direc-

tor Niilo Hautala: "Specific know-how is exceptionally important here. Solutions need to be based on a thorough understanding of technology, projects, customer needs, and life-cycle management – hence the importance we place on trusted, long-term customer relationships. superioHUB® is a comprehensive service model that encompasses all of this."

Smart cabin automation

For most ship owners today, the focus is on smart cabins – the application of advanced automation technology to enhance cabin comfort and convenience. This offers new ways to take even better care of passengers. Niilo Hautala: "The future of cruise ship cabins will be shaped by smart automation technology. In our case we take the advantage of PC-based control from Beckhoff. It



Loisto's managing director, Niilo Hautala (second from the left), with his team of developers: "A fundamental advantage of Beckhoff products is their compact format, because the space available for electrical installations and equipment is always extremely limited in yachts and cruise ships."

enables us to introduce our innovations aimed at boosting energy savings and safety, and to create a better on-board experience for guests."

Loisto's superioHUB® integration platform was developed specifically with these requirements in mind. It enables separate systems spread across different rooms and room groups to be united in a single, easy-to-manage solution. One of the key components, says Hautala, is the control system from Beckhoff, which consists of modular hardware components combined with TwinCAT 3 automation software that incorporates specialized TC3 Modbus RTU, TC3 IoT Communication (MQTT) and TC3 OPC UA functionality. At the I/O level, the system uses EtherCAT Terminals and Bus Terminals supporting the DALI, DMX and KNX communication protocols. CX51xx and CX9020 Embedded PCs provide the requisite computing power. From Loisto's perspective, the new CX7080 also has considerable potential as an affordable controller for use in ships' cabins. For Niilo Hautala, the control system's advantages lie in its ability to support not just current but also projected functionality, based on the wide range of terminals available and comprehensive protocol support. This, he says, is what makes a maintenance-friendly and easy-to-modify platform like superioHUB® possible.

The control system regulates the temperature (by triggering of the air conditioning units, either directly via the I/Os or via Modbus RTU), controls the lighting, and monitors cabin doors, windows, occupancy status and temperature. The Beckhoff controller operates as a field level gateway, connecting functionalities with the aforementioned communication protocols. "The superioHUB® can combine several cabin subsystems within a single, easy-to-manage solution, capable of controlling lighting, ventilation, locks, electric curtains, electric doors, all from a single unit. It integrates with systems, such as service and hospitality software. It also integrates AV equipment to enable TV control and use of TVs as a point of information, and supports smart cabin

monitoring for maintenance purposes. No matter how much functionality is involved, superioHUB® can be scaled up exactly as necessary to support it," explains Niilo Hautala.

The superioHUB® solution uses the Beckhoff modular I/O system to combine all the requisite control capabilities. At the same time, it can monitor and analyze all the cabin control and status information. "Having all of the data available within superioHUB® means we can generate custom visualizations for different crew members based on their roles and authorizations. For instance, housekeeping can see whether or not a cabin is occupied, which helps them to complete their work as efficiently as possible. And maintenance crew members can trigger an alarm if, for instance, a potentially dangerous situation is detected in a cabin – ideally, before passengers notice anything is wrong," Hautala remarks.

Smart cabins as a life-cycle product

A successful smart cabin project is not just about selling a black box, but about life-cycle services, too, as Niilo Hautala is keen to emphasize: "We use the latest control technology in our superioHUB® service platform as it enables us to deliver optimal cabin automation solutions – today and tomorrow. Implemented consistently, automation not only helps us make shipbuilding more efficient, it can take passenger comfort and system control to a whole new level as well." At the same time, he says, the aim is to promote greater sustainability by helping to reduce the shipping industry's energy and environmental footprint.

More information:

www.loisto.pro

www.beckhoff.fi