

Forge ahead

by Martin Isik, CCO, FERNRIDE

Terminal operators, positioned at the critical junctions of international trade, play a pivotal role in facilitating global commerce. They work behind the scenes to ensure smooth and efficient movement of goods across continents. As the scale and complexity of global trade continue to escalate, operators are tasked with a demanding challenge: to increase efficiency, reduce downtime and ensure safety, all while maintaining robust and reliable operations.

This case study article explores how HHLA tackled this challenge head-on by embracing innovation and technology, working with FERNRIDE, a company offering automation solutions for yard trucking. Therefore, FERNRIDE and HHLA TK Estonia, a subsidiary of HHLA that operates a container terminal in the Port of Tallinn's Muuga Harbour, started a project to validate and integrate the solution of FERNRIDE at the facility.

The opportunity

As global trade expands and evolves, container terminal operators must adapt and innovate. As one of Europe's largest operators, HHLA is no stranger to such demands. With vessel size increases, freight rate fluctuations, and ever-evolving customer expectations, the company has consistently demonstrated resilience in facing these challenges, focusing on maintaining efficiency, safety, and customer satisfaction.

One of the most pressing challenges HHLA had to tackle was the ever-increasing size of container carriers serving global trade. Over the past decade, the average size of these vessels has more than doubled, with mega-ships capable of carrying 20,000 TEUs becoming increasingly common. Such colossal vessels profoundly impact terminal operations because un- and loading them requires significantly more time than their smaller counterparts.

This increased berth time could lead to a domino effect on the entire operation, causing delays and congestion that ripple

through the terminal and disrupt the carefully orchestrated flow of goods. The congestion doesn't only mean a few hours of setback: a ship may miss its tidal window in some ports, forcing it to wait for additional 12 hours to leave the harbour.

Balancing these escalating demands with the need to maintain safety standards and profitability is a delicate act. Terminal operators are expected to be flexible, agile, and efficient. Some see it as an opportunity to give transformative innovation a play.

The leap

HHLA strategically decided to develop an automated mixed horizontal transport system to increase efficiency and throughput. This forward-thinking approach brought them together with us, a technology company at the forefront of human-assisted autonomous trucking solutions. FERNRIDE's automation technology will enable a single remote operator to manage up to four trucks concurrently. This is a tangible improvement from the traditional 1:1 driver-truck ratio, easing the trucker shortage issue prevalent in the logistics industry.

To validate the solution in the area of a container terminal, FERNRIDE and HHLA TK Estonia, the country's largest 'box handler,' decided to start a site project in Tallinn. As a digital-oriented terminal, HHLA TK Estonia is open to testing innovative solutions. The decision to incorporate electric, autonomous trucking into their operations was a leap towards a new era of terminal operations.

The pilot involved fitting a terminal tractor with sensors and cameras to be

remote-controlled via mobile networks. Teleoperators at a computer workstation resembling a vehicle cockpit took remote control of the machinery, receiving and sending targeted commands online by controlling the gas pedal, brakes, steering wheel, and joystick.

The pilot started in early 2023 to determine the technology's operational reliability in automated container handling and to validate the technology's viability for future business opportunities. FERNRIDE's solutions were implemented seamlessly into existing processes, ensuring no interruptions or incidents occurred during the transition. This smooth integration was critical in maintaining uptime and delivering consistent customer service throughout the implementation phase.

Safety remained a non-negotiable priority for HHLA TK Estonia despite the drive for increased efficiency. FERNRIDE's technology helps in reducing the risks of on-site accidents. In the operations we managed, the accident and injury rates were remarkably maintained at 0%. This achievement underscored the impact autonomous technology could have on safety, redefining what is achievable in the industry.

Half a year later, the project partners ticked off the first phase, agreeing to proceed to the next one. With the start of the second phase, autonomous driving will be integrated into operational processes. For this purpose, an additional automated yard truck will be deployed at the terminal for container transport. The goal is to achieve a degree of autonomy of at least 80-90%.



Photos: FERNRIDE



A defining testament to FERNRIDE's success at HHLA TK Estonia was the perfect net promoter score of 10/10 awarded by the port. It is proof that FERNRIDE not only met but exceeded the goals of FERNRIDE in the project with HHLA TK Estonia. Riia Sillave, CEO of HHLA TK Estonia, said, "The joint project with FERNRIDE enabled us to test the system directly in HHLA TK Estonia's operations. The implementation has proven itself in daily terminal operations so that the proof of concept could already be achieved at an early stage. We really enjoy working together with the FERNRIDE team, which always shows a high level of competence and professionalism. We will now continue the good cooperation with FERNRIDE and work out together how autonomous driving can work in the future. In doing so, we are pursuing the goal of making workflows at our international terminals future-oriented and sustainable."

The new benchmark

The successful project of HHLA TK Estonia and FERNRIDE is more than just a success story. It is an inspiring tale of how embracing innovation and technology can redefine the boundaries of an industry.

Adopting FERNRIDE's technology signals a significant shift in the terminal operations landscape. HHLA TK Estonia has paved the way for others in the industry by demonstrating the immense potential and benefits of autonomous trucking.

The journey of HHLA TK Estonia is a telling example of the power of innovation in addressing the modern challenges of terminal operations. It underscores the transformative potential of technology and

the value of embracing change in a dynamic industry landscape. In the face of growing global trade and the escalating demands of terminal operations, HHLA has demonstrated that the solution isn't merely to increase effort but to optimise work strategies. By utilising autonomous technology, they have contributed to industry transformation and established a new benchmark for terminal operators across the globe.

This case study conveys the forward-thinking approach and determined spirit of HHLA and its subsidiary HHLA TK Estonia. As they navigate their way in the terminal operations landscape, one aspect is evident: they are not just keeping up with the industry's pace but forging ahead. ■

FERNRIDE FERNRIDE offers scalable automation solutions for yard trucking that increase productivity, promote sustainability, and improve worker safety. The company employs a human-assisted automation approach, which allows for remote takeovers of electric trucks when necessary. This ensures seamless integration and reliable operations for logistics operators. Head to www.fernride.com to discover more.