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TECHNOLOGY
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Clearing the Congestion: Automated Gate & Rail System Reduces Transaction Times from 30 Minutes to Three Minutes at Baltic Container Terminal

With annual throughput capacity of 1.2 million TEU, the Port of Gdynia's Baltic Container Terminal (BCT) is Poland's second largest container terminal and one of the top terminals in the Baltic region. The facility offers efficient and reliable services 24 hours a day, seven days a week, and 365 days a year to international shipping lines serving the region. The terminal opened in 1979 and was acquired by International Container Terminal Services, Inc. in 2003. Since then it has seen significant growth making it one of the region's fastest growing container terminals. To meet the demand, BCT has made numerous investments in handling equipment, infrastructure and technology, including 15 projects funded by the European Union (EU). However, it recently experienced some growing pains, as BCT's traffic volume began to strain its existing processes and systems, leading to congestion and heavy traffic at the terminal gate.

The Challenge – Scaling Operations for Sustainable Growth

Since BCT serves as one of the region's key container terminals, it handles a high volume of containers through its gates each day. Efficient gate transactions are essential in order to ensure rapid truck turn times and optimal customer service levels. As the terminal grew, container traffic increased, leading to long truck lines that at times backed up onto the public road outside the terminal's entrance. The management team at BCT realized that in order to manage the growth and maintain outstanding customer service, they needed to scale the terminal's gate operations accordingly. It became clear that streamlining gate operations through automation was the best solution. BCT was able to secure EU funding to help finance a gate and rail automation project (one of five IT-related projects at BCT funded by the EU) so the team could reduce truck wait times, in turn increasing gate throughput and minimizing congestion on the main road, while also improving safety, security and data accuracy.

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- Andrzej Puławski
IT Manager
Baltic Container Terminal

A Cohesive Team

BCT and Tideworks partnered for the first time in 2006 when the terminal's management team selected Tideworks to replace its legacy terminal operating system (TOS), and the two organizations have been working closely together ever since. BCT has achieved numerous operational improvements since it began utilizing the Tideworks TOS, including enhanced cargo visibility, improved inventory control and asset management, and a

heightened level of service to its customers. Given the success of their existing partnership, BCT's IT team often turns to Tideworks for additional support. For example, when BCT needed an Electronic Data Interchange (EDI) solution that would allow its IT team to manage the infrastructure themselves, Tideworks adapted its existing EDI service-based offering to create a product-based, self-service EDI platform that gives BCT's team full control of the process. Likewise, BCT turned to Tideworks for assistance when it implemented a new booking system in 2014. Previously, BCT did not use a standard booking system for export containers; the terminal relied on freight forwarders to "pre-lodge" all export containers using the Tideworks web portal. Tideworks instituted a number of changes to the TOS and the customer-facing web portal to successfully integrate with the selected booking system and BCT's new processes. This included developing underlying, complex logic to support three distinct methods for booking containers as well as processing of standard EDI message sets. This project laid the groundwork for gate automation at BCT.

When the gate and rail automation project was approved in 2015, BCT's management team knew it would need to assemble a cohesive team of complementary, industry-leading service providers to execute the work. BCT immediately tapped its long-time partner Tideworks to be part of the team, confident that Tideworks could handle the unique project requirements and seamlessly integrate the new automated gate operating system (GOS) into BCT's existing TOS.

"Over the years Tideworks has consistently delivered solutions that meet the unique needs of our terminal," said Andrzej Pulawski, IT manager at BCT. "We have been very pleased with their work, and we knew that they would play an essential role in bringing together our existing TOS with our new GOS to further automate our operations. Additionally, their collaborative nature indicated that they would partner well with the other service providers we brought on board for the project."

BCT contracted Visy, an Optical Character Recognition (OCR) and automated access control solutions provider, to be part of the project team as well. Visy provided key components to help automate the truck and rail gates, such as OCR and damage inspection portals at the in-gate, out-gate and rail; and self-service entrance and exit kiosks.

The third member of the project team was Autepra, an IT systems engineering consultant. As the systems integrator and project lead, Autrepra oversaw not only the required civil works but also all IT-related work to ensure the subsystems functioned cohesively and brought together the diverse parts of the project into the final, automated gate and rail solution.

Autepra, Visy and Tideworks worked closely with BCT to ensure the various pieces of the project fit together flawlessly. All three companies had team members onsite at various times throughout the project and remained in close contact while working remotely. This tight partnership proved to be essential for successfully delivering the technology needed for a fully automated gate and rail system because certain technical aspects of the project, such as the driver-led kiosk screens, were extremely complex.

Developing a Fully Automated System

The team of Tideworks, Visy and Autepra created a custom solution to automate gate and rail transactions at BCT. The full system includes two pre-gate OCR and damage inspection portals using line scan technology for high-resolution images; four driver self-service lanes; a nine lane gate area for checking in and out with self-service kiosks; two outgate OCR portals; one train gate portal for equipment identification and automatic train composition; a driver identification system; a damage inspection system; and full integration with BCT's existing Tideworks TOS.

The self-service, interactive kiosks enable drivers to complete gate transactions without clerk assistance. Drivers enter only the required information that is not automatically captured during the OCR portal passage. The driver-led kiosk screens, developed by Tideworks, are available in three languages (English, Polish and Russian) so drivers can quickly and easily complete the transaction in the language of their choice. The logic and process flows behind the multi-language kiosk screens proved to be incredibly complex, and the Tideworks team spent many hours fine-tuning it.

Streamlined Gate System Leads to Major Efficiency Gains

Implementing a fully automated truck and rail gate system has significantly streamlined BCT's operations so the terminal is prepared to handle additional traffic as it continues to grow. The high-volume of traffic that previously congested the terminal's gates, which led to long lines that spilled onto the main road, has turned into a steady flow thanks to significantly shorter transaction times at the gate. Automating the transaction process has also enabled BCT to better utilize its team members and improve the overall safety of the terminal.

"We are honored to be a part of the team that helped bring this automation project to fruition," said Michael Schwank, president of Tideworks. "Seeing the positive impact on BCT's operation and how efficient their gate process has become has been extremely rewarding for us. We look forward to continuing to partner with BCT on their technology initiatives."

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Before the system was automated, gate transactions involved an arduous process – drivers had to find a place to park, gather their paper documents, go to the pre-gate office to have their documents verified, wait while the BCT clerk inspected the container and printed their ticket, and then go to the main gate to show their ticket and papers to the security officer. In total, the process took about half an hour, involved numerous paper documents, and required two clerks stationed at the pre-gate office as well as four security clerks at the main gate. Now the process is completely paperless and only requires one gate clerk and one security clerk. BCT issued more than 3,500 identification cards to the truck drivers serving the terminal, which they scan at one of the self-service kiosks, and the OCR camera system automatically captures images of the vehicle so clerks no

longer have to manually inspect the containers. As a result, the transaction
process has been reduced from an average of 30 minutes to approximately three minutes.

Gate transactions are also processed and documented in a more thorough and accurate manner. The automated verification system reduces the risk of human error inherent in manually checking paperwork and entering container and license plate numbers and other information. Also, each driver's identification card is registered so it can be cross-checked against their profile in the system, and camera systems automatically capture images of every driver's face and verify each container as it leaves the terminal for added security.

The automated gate and rail system has helped BCT modernize its transaction process, resulting in faster turn times and greater throughput at the terminal so BCT can continue growing container volumes without compromising its outstanding level of service.

"BCT has seen significant growth over the past few years and we wanted to deploy a solution that would help scale our operations accordingly," said Pulawski. "The automated gate and rail system has streamlined operations so we can complete more transactions in a shorter amount of time, allowing us to accommodate more traffic through the gate. Tideworks played a vital role in the success of this project, and we are very satisfied with their service."

About Tideworks Technology
Tideworks is a full-service provider of cost-effective, reliable software solutions for growing terminal operations and shipping lines worldwide. The company helps more than 300,000 users at more than 100 facilities run their operations more efficiently and profitably. From optimized equipment utilization to faster turn times, Tideworks works at every step of terminal operations to maximize productivity and customer service. For more information about Tideworks Technology, a Carrix solution, visit www.tideworks.com/.

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