

Simulation training is a key to sustainability

Mary Lee Shalvoy, CM Labs Simulations, director of product marketing describes the real and positive impact that simulation training can have on the sustainability of port terminals.



Mary Lee Shalvoy, director of product marketing at CM Labs Solutions.

One of the biggest challenges facing port terminal executives and managers today is the need to reduce their environmental footprint. According to the International Maritime Organization (IMO), shipping is responsible for between 2% and 3% of global greenhouse gas emissions, and that figure continues to increase annually. This means ports have a critical role to play in reducing the sector's carbon footprint. At the same time, ports also need to balance their environmental responsibilities with their commercial goals and objectives, ensuring that they remain competitive in an increasingly crowded and tumultuous market.

Fortunately, one solution to these challenges lies in the use of simulation training. By providing port and terminal decision-makers with the tools they need to optimise their operations, simulation-training technology can help to reduce the environmental impact of ports while also increasing efficiency and competitiveness.

So how exactly does simulation training work and what benefits can it offer ports in today's environment?

How does simulation training help ports?

Simply put, the simulators designed to represent the real experience when using port equipment make excellent vehicles for training the most productive operators in a safe and efficient way. Comprehensive reporting and analytics from the systems further enhance a simulation-based training program, producing the safest, most effective operators. The airline and aerospace industries integrated simulation training into operations and

certifications many years ago. At this point, can you imagine a pilot that has not trained using simulation technology?

Physics-designed motion systems can reproduce the complete range of bodily vibrations experienced by a user during simulation training exercises, resulting in an incredibly realistic training experience. Currently, simulation training is available for almost all port equipment, including both quayside and yard side operations. Popular training programmes include various sizes of ship-to-shore (STS) cranes, along with empty container handlers, which are becoming increasingly necessary in today's market, and reachstackers, which aid in yard operations management. A truly effective training programme offers end-to-end simulation training, beginning with worker screening and culminating in a well-equipped operator, as well as career advancement opportunities, serving the entire port operator workforce development cycle.

How can simulation training help the environment?

Overall, simulation training can help promote sustainability in ports by reducing emissions, improving safety, increasing productivity and efficiency, and easing the wear and tear on real-life equipment. Here are some examples:

- 1. Reducing emissions:** By simulating the operation of the port equipment, operators can learn to operate these machines in the most efficient way possible, which can reduce fuel consumption and emissions. This, in turn, can help to reduce the environmental impact of port operations.
- 2. Improving safety:** One of the primary benefits of simulation training is that it can help reduce the risk of accidents and equipment damage. According to the International Association of Ports and Harbors, there are approximately 4000 crane-related accidents at ports around the world each year. These accidents can result in injuries to workers, damage to equipment, and disruptions to port operations. By providing a safe and controlled environment, simulation training can help reduce the risk of accidents and equipment damage, which can ultimately save lives and reduce costs, ensuring a sustainable workforce and the heavily invested equipment.

Simulators track and log performance metrics, such as cycle time, fuel consumption, pendulums, collisions, and failure to protect others on the worksite. The Port of Tilbury, located in the UK, and the Flinders Adelaide Container Terminal, Australia, have incorporated simulation into existing training programmes using detailed reporting to track success.

Port of Tilbury reported a reduction in incidents, accident

Simulation training can continue in poor weather conditions, day and night and can simulate a storm before the operator has to face it live.





levels and costs, in terms of the risk to both the trainers and the port environment itself. At the same time, weather no longer interferes with training - simulators make training available at night, or during heavy wind, rain, snow, or icy conditions that would otherwise bring training to a halt and increase the incident rates. Instead, trainees can experience simulated weather effects to learn safe operations before facing a storm live.

3. Increasing productivity: Efficient port operations can help to reduce the time and resources required to move goods, which can reduce the environmental impact of transportation. By improving their skills through simulation training, port

Popular simulation training programmes include various sizes of ship-to-shore (STS) cranes.

operators can increase their productivity and reduce the time required to move goods, which can have a positive impact on sustainability.

Flinders Adelaide a new crane operator requires 180 hours of training on average to meet the required proficiency standards. Using simulators, the new trainees have managed to meet and exceed the level required in around 100 hours.

The Port of Tilbury has standardised its training programme at three weeks, transforming the approach to monitoring, measuring, and increasing productivity.

4. Reducing equipment wear and tear: By simulating the operation of port equipment, operators can learn to operate these machines in a way that reduces wear and tear. This, in turn, can reduce the need for maintenance and repairs, which can reduce the environmental impact of port operations. For Port of Tilbury, simulation supports the running of a consistent programme. Operational requirements mean equipment is not always available for training, which meant it could take almost two months for new recruits to get through a three-week training programme.

Simulation training provides a cost-effective way of training operators resulting in improved efficiency, reduced fuel consumption, and lower emissions due to the operator's ability to optimise operations. Additionally, simulation training helps in reducing accidents, increasing safety, and improving the overall performance of port operators. The adoption of simulation training in port operations is a key step towards achieving a sustainable and efficient port industry. ■