

# Technology Offers Tempting Opportunities in Terminal, Advanced Vehicle Sectors

Emerging technology in terminal operations as well as autonomous and electric vehicles offer intermodal businesses tempting opportunities to improve efficiency and lower costs.

That was the good news delivered by eight industry experts speaking at Intermodal EXPO. On the other hand, it was equally clear that the process of capturing those gains would be challenging and require patience.

Comments from two of those speakers emphasized the broad picture.

"We like technology due to the ability to make incremental improvements like these," said Brant Ring, vice president of business unit operations at BNSF Railway, referring to steps such as greater use of automation. "We are pursuing these actions because customers expect us to produce at a high level," he said.

"There are huge opportunities and benefits for stakeholders if it [automation] is rolled out right," said Steve Boyd, co-founder of Peloton Technologies in the form of cost reductions and improved efficiency.

John Allen, vice president of business process development for ITS Technologies & Logistics, emphasized the importance of a collaborative approach. He said too many transport operators and software businesses have been selfishly focused on how information they have could hurt themselves and possibly help someone else.

Allen said in today's market that the technology exists to improve terminal throughput, but the information that is needed to make those improvements isn't as accessible as it should be.

## "Information in the Right Hands"

Jarno Kuipers, senior manager of terminal development at Kalmar, agreed with Allen, saying that better exchange of information is a crucial needed step.

"The right information is available somewhere," he said. "It just isn't being shared."

With better information in place, Kuipers believes that the possibilities are huge for technological advancements in terminals.



Ring

There are challenges in achieving those changes, such as the fact that each terminal's layout is unique, so that one approach to minimize dwell time in one location doesn't necessarily work at another location. In addition, he noted there are tradeoffs such as steps to cut dwell time by adding equipment to move cargo that will increase traffic density in a yard.

Krystle McBride, transportation planner for engineering firm AECOM, also illustrated the technological progress, and the tradeoffs in terminals.

Information quality is improving, she noted, which generally has helped to solidify the benefits to truckers from appointment systems. On the other hand, steps such as grounding of boxes have increased the workload for hostlers and can create delays for truckers while a box is being dug out of a stack.

McBride envisioned a future where manual gate activity is eliminated, cargo handling equipment is fully electric and there are improvements in real-time status information, integrated systems and data sharing.

## Terminal Advancements

Ring emphasized notable progress that is being made at gates. About one-third of drivers now use BNSF's mobile app for a variety of functions, including gate processing time.

The advent of electronic logging devices will create further advancements next year, when the railroad expects to be able to use information from those devices to process a truck without stopping, creating what he termed a "gateless gate."

Within the terminal, BNSF is focusing on speeding up the process of gathering information on equipment inventory, which is done now by personnel who drive around in vehicles. An alternative in the form of collecting information via a camera equipped with machine learning is being tested in Texas. The camera can be programmed to detect all types of information about a piece of equipment, including the corporate logo as well as reporting marks and unit numbers.

Automated straddle carriers, now in use at ports worldwide, are being targeted for a rail intermodal terminal in the Kansas City area to speed the movement of boxes within a terminal.

"Telematics is a really evolving space," Allen said, citing examples such as how cameras are used today to assist hostlers and noting the additional benefits when technology can be used to direct subsequent future moves.

ITS is using facial recognition technology at two terminals to monitor driver distraction and performance, Allen said.

## Vehicle Sector Gains

Jussi Suhonen, sales director for port solutions for Konecranes, noted that automation has been developed steadily in marine facilities since it was introduced nearly 30 years ago.

In the vehicle sector, the story is similar, with a focus on the gradual progress of technology — for both electric trucks and autonomous operation of that type of commercial equipment.

"We have seen great port automation," Boyd said. "We need vehicle automation to marry those benefits. These [autonomous] systems can improve safety. There is a lot of opportunity to improve efficiency. There are a lot of queueing issues in terminals. Drivers can't get to containers or trailers quickly."

For example, Boyd said an autonomous vehicle can create dual benefits by picking up or dropping off a container while the driver takes the mandatory 30-minute rest break.

"Intermodal can be first," Boyd said, by taking advantage of factors in controlled settings such as growing port automation, wider use of rail technology, the emergence of companies such as Orange EV and tests being done by others.

Mike Saxton, chief commercial officer of Orange EV, agreed that the yard setting is more appropriate for autonomous vehicles. "It's all about the ability to control the [implementation] process," Saxton said, through ownership of a terminal and the operations inside it.

When it comes to electric vehicles, Saxton said, "It is not the future. The electric yard truck is here. Railroads and yard managers have been reordering them."

## Action, Not Words

The key to accelerating progress and capturing the benefits from the advancement of both electric and autonomous vehicle technology is action, the experts said.

"Start now with pilot programs," Saxton said. "It is a journey. If you just get the vehicles out there, the market will adjust."

"Be early adopters," said Wade Long, regional vice president for Volvo Trucks North America. "Technology doesn't come for free."

Taking advantage of developing technology on heavy trucks is important because the number of those vehicles produced annually — 250,000 — is small compared with car and light truck sales that are about 50 times greater, Long noted. Because the number of heavy trucks sold is so much smaller than car and light truck sales, Long said, there are fewer opportunities to test technology such as autonomous vehicles or alternative fuel systems.

"There are huge opportunities to lead the market today with technology," Boyd said, which could attract younger workers to an industry as driver roles shift away from sitting for hours behind the wheel on long haul runs.

Peloton is evaluating opportunities in the intermodal sector with two railroads, he added.

## Steady Progress

Long also identified steady progress in creating partial autonomy in vehicle operations, which has advanced initially through features such as automated cruise control.

The advent of automated transmissions has aided trucking by extending drivers' careers as the average age of those workers has increased, Long said. In barely a decade, automated transmissions have progressed from being unheard of to the point that 95 percent of all heavy trucks produced today have them as standard equipment.

All of the experts agreed that while there is potential for intermodal to benefit from vehicle technology, fully automated vehicles on the highway, particularly in urban areas, won't be coming anytime soon.

Long cautioned that fully autonomous vehicles are "far away" because regulations will have to be developed before they can be deployed. Long said that the combination of regulation, public acceptance and awareness will serve to slow down the spread of autonomous vehicles. Highly publicized accidents involving autonomous vehicles also don't help, several speakers noted.

It's possible that some highway routes could be developed for autonomous vehicles with separate truck lanes, Boyd added, though safety concerns will be paramount. "We cannot [continue to] accept a 40,000-person death toll [on the highways]," he said.

Saxton praised California government and businesses as "a clear leader" in the adoption of electric vehicles and automation, through investments to support equipment financing.



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