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PERSPECTIVE ON AUTONOMOUS TRUCKING

THE HUMAN IMPERATIVE

For all the promise autonomous trucks hold, the simple fact is they will rely on human help on multiple fronts to succeed.

If you sometimes wonder at the technological rush we all find ourselves in the midst of today, rest assured you're not alone. As Deborah Lockridge, editor, Heavy Duty Trucking magazine noted in a "Look Back" editorial at the end of 2020, autonomous trucks weren't anywhere on the trucking industry's collective radar screen a decade ago. To a tiny degree, electric trucks were. And hydrogen fuel cells were still firmly the stuff of science fiction.

And yet, increasingly, the trucking industry finds itself preparing for a time when driverless trucks — automated commercial vehicles under either limited human control during a trip, or even no humans on board the vehicle at all — will be an operational reality for fleets.

Assuming that economies of scale come into play and autonomous systems reach a competitive/attractive price point for fleets, then the temptation to take drivers out of the seats of many trucks will likely prove to be irresistible for bottom line-focused fleet executives.

But, tech experts insist, as during all times of technological disruption, new ways of doing things means new jobs for workers displaced by the new technology. And, it is worth noting, trucking always will be an operational system that requires lots of humans putting their eyes, as well as their hands, on a vehicle in order to be successful.

The first, and most obvious, mandatory human interactions with an autonomous commercial vehicle are vehicle checks and load inspections — both absolutely critical and mandatory procedures before, and after, a truck leaves a yard on a run.

Of course, it's important to remember that trucks are quickly turning into semi-intelligent, rolling computers, thanks to telematics systems, artificial intelligence and machine learning capabilities. So, it seems likely that some form of automated pre- and post-trip inspection checks will be developed to make sure a truck is ready and safe to hit the road.

But load securement is a bit more tricky. According to the current Federal Motor Carrier Safety Administration guidelines, commercial drivers are required to stop and check for load securement at various times during transit — generally within the first 100 miles of a trip.

Obviously these rules will need to be adjusted in some ways if human drivers are no longer onboard trucks. It seems likely that load securement checks will be a new type of business in an autonomous future: Check stations, much like commercial scales today, where trucks can pull in and have a human safety expert check out the load, make sure it's safe, and then issue an electronic OK for the vehicle to continue on its way.

I think we'll see the return of full-service fuel islands at truck stops and travel centers nationwide as well. There won't be any need to wash the windshield as in days of old, but a quick scan with a smartphone or tablet will let the fuel technician know if a tire needs air or a repair, or if the power steering fluid needs to be topped off. It seems likely to me that load inspection and cargo securement will be a part of any fuel stop for an autonomous truck. And being a fuel pump technician will perhaps be an entry-level job for people interested in becoming full-blown commercial vehicle technicians.

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Cargo security is another fleet requirement that may spark a new type of job or business opportunity in the world of autonomous trucking as well. In addition to everything else they do, truck drivers also are sentries who keep an eye on the cargo they're hauling and help to deter thieves interested in whatever goods lie behind those closed van doors.

It's worth noting that new vehicle theft has declined dramatically over recent years. This is because most new

cars and trucks have some sort of electronic tracking system onboard that allows owners and law enforcement to quickly track down a stolen vehicle.

But that's not to say that thieves couldn't follow an autonomous truck carrying a load of iPhones or Pappy Van Winkle bourbon out to a remote stretch of desert, hack into the vehicle control system and have it pull over and ransacked before law enforcement can respond. Who's to say there won't be an opportunity for fleet-focused security services in the future, where agents tag along on an autonomous run to help guard valuable cargo from thieves.

There's also the interesting problem to consider when law enforcement needs to pull a truck over. Since an autonomous truck should, in theory, always obey posted speed limits and roadway signage, it seems likely this would occur mostly because an officer spotted a safety violation of some sort. But how will the officer order the truck to pull over? And who will they communicate with once the vehicle has come to a stop?

Consider something as routine as a flat tire, and how vastly different the process of getting a service truck to a stranded autonomous truck and initiating repairs in a way that the fleet can be confident the truck can safely continue on its journey and you start to understand the sheer volume of change this technology will bring to trucking.

These are not insurmountable obstacles, of course. But they do highlight the need for systemic and operational changes that will have to be made in a number of ways once true Level 5 autonomous trucks become a reality.

The important thing to remember in all of this is that there will be opportunities for new businesses, new jobs and even more new technologies as the operational realities of autonomous trucks grow nearer. Because it seems obvious that even the most advanced autonomous truck will require a dedicated team of humans to keep it on the road and delivering cargo.

About the Author: *Jack Roberts is a transportation journalist who has been covering North American commercial vehicles for 25 years and has developed a reputation as a leading authority/futurist concentrating on new trucking technology, including autonomous vehicles, battery-electric trucks and emerging blockchain technology.*