

PERSPECTIVE ON AUTONOMOUS TRUCKING



STUDY FINDS AUTONOMOUS TRUCKING COULD IMPACT 94% OF OPERATOR HOURS ON THE ROAD

A new study by the University of Michigan and Carnegie-Melon University says that autonomous trucks will roll out slowly, but eventually impact all aspects of fleet operations.

Autonomous trucks will roll out slowly, but eventually, as many as 94% of all operating hours will be under some form of robotic control.

That's according to a [new, joint study](#) released by the University of Michigan and Carnegie-Melon University, which looks at the current trends for autonomous truck technology and the most likely outcomes for its use once it matures.

Some of the information will be old hat to followers of NACFE's *Perspective on Autonomous Trucking* blogs. The study notes, for example, that autonomous trucks currently don't do well in inclement weather. And, therefore, their initial rollout will likely be confined to the American Southwest. And it also notes that the large-scale deployment of autonomous trucks likely will create "new employment opportunities at transfer hub portals," truck stops and other facilities.

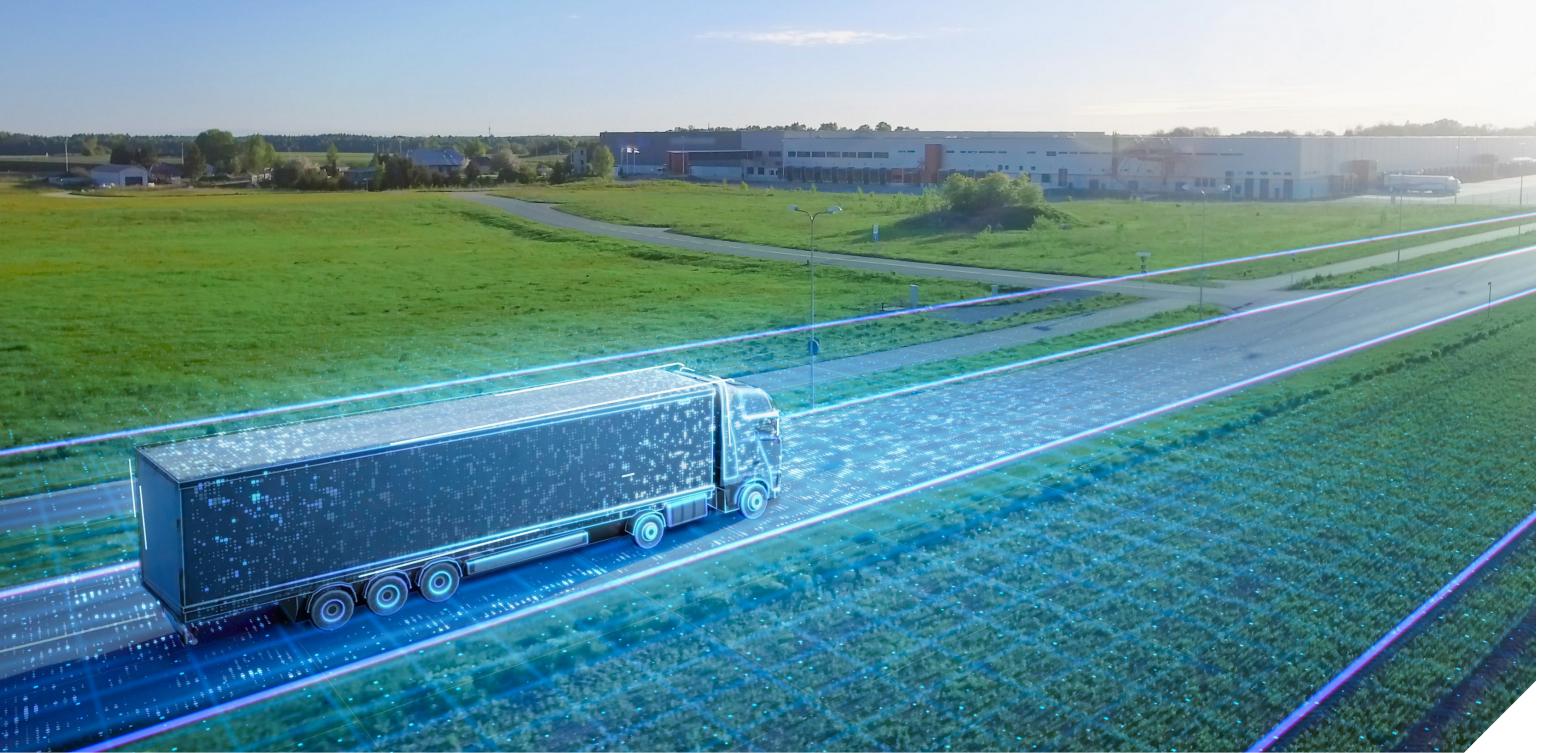
The study also predicts that autonomous trucks probably will displace "several hundred thousand" driving jobs, as opposed to, say, a million or more jobs as some industry analysts have suggested. And it notes that even though these numbers seem severe, "there is plenty of evidence to suggest that for most people these are fleeting, poorly paid and unpleasant jobs." In other words, dedicated professional drivers still will be able to find jobs behind the wheel for many, many years to come. But the study also highlights the fact that driver-

labor costs account for about two-fifths of the cost of fleet operations. So, it is logical to conclude that mature and proven autonomous driving technology will be an "attractive option" for fleets looking to cut operating costs.

The study also predicts that what it calls a "transfer hub model" will likely become the preferred operating mode for long-haul fleets using autonomous trucks. (The study defines a "long-haul" route as more than 150 miles in a day.) The transfer hub model would involve an automated truck completing the highway leg of a route, with human drivers taking control of the truck in more

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dynamic, challenging and dangerous suburban-urban segments, at both the starting and end points of the journey. Additionally, the study predicts that "truck ports" near major highways would be used to switch out trailers from power units at points during the run — basically an academic description



of “drop-and-hook” operations today.

According to Aniruddh Mohan, a doctoral candidate in engineering and public policy at Carnegie Mellon and a co-author of the study, it is the first look at autonomous truck trends that combines a geospatial analysis based on shipment data with an explicit consideration of the specific capabilities of automation and how those might evolve over time.

Using this information, the study concluded that up to 94% of operator hours may be impacted if automated trucking technology improves to operate in all weather conditions across the continental United States. In other words, safe and reliable autonomous vehicle control systems for commercial vehicles would prove so popular with fleets, that for every 100 hours a truck is on the road in long-haul applications, 94 of those hours would be spent under computer control as opposed to a human driver.

The big question is when would 94% of long haul be automated. If there are approximately 2 to 3

million tractors in active service today, and a great production year for OEMs is perhaps 300,000 tractors a year, it still would take years, perhaps decades, for those new technologies to achieve that 94% of use.

94% may seem like a shocking number. But it's a compelling argument that should safe and reliable autonomous commercial vehicle technology reach the point where it can safely operate year-round nationwide, the cost savings and efficiency gains offered will simply be irresistible for fleets. And it is yet another indicator as to just how transformative — some would say “disruptive” — this new technology will be.

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.



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