



## DEEP INTEGRATION

*Autonomous trucks are simply one component series of an all-new, integrated transportation technologies that will transform global logistics.*

By Jack Roberts

The headlines scream “Self-driving truck!” And you can’t help but look. Because for every American alive today, the idea of an autonomous vehicle of any sort, managing itself capably in chaotic traffic conditions while it drives down a public roadway is the stuff science fiction — something they expect to see on *The Jetsons*, *Blade Runner* or *Logan* — not in a truck rolling down the highway carrying a load of produce.

And yet, here we are. Autonomous trucking technology is on the fast-track toward mainstream use in commercial vehicles. And the effort has been a truly astounding technological feat. One day soon, you will see a car or truck without a human being behind the wheel driving down the highway. And you will remember that moment for the rest of your life and talk about it the same way my grandparents used to talk about the first time they saw an airplane in flight.

And yet, for all the glitz, pizzazz and media attention showered on self-driving trucks, the reality is that they are just a singular example of a tremendous onslaught of change racing toward the trucking and global logistics industries today.

All of us are living in a time of sweeping technological change. Over the past 50 years, a multitude of advances across our society’s entire technological spectrum has led to a whole host of new ideas, systems, products, and devices. And, significantly, these new technologies are no longer being developed in isolation.

Gone forever, for example, are the days when engineers developing a new television set needed to focus their work primarily on its reception and image quality. Today, any new product you can think of must be engineered from the ground up to not just work in conjunction with a multitude of other technologies and devices, but to be seamlessly integrated with those devices and systems as well.

To expand on my television example, just think for a moment about the standard functions, features and capabilities a modern television set must possess to be a competitive product in the marketplace today. It still must deliver the same basic function of providing visual and audio expected

from a television made in, say, 1990. But now, it must handle increasingly demanding visual resolutions.

It must be able to seamlessly access programming across a large, and ever-growing array of media platforms. It has to be a “smart” device, able to help its owner program and use it for a growing array of functions. It needs to have internet capability and web access, and it needs to be able to access other devices, phones, tablets and computers, for example, to allow its users the ability to access messages and communicate in real time.

It needs to be able to deliver a high-definition image with vibrant stereo sound and have the ability to record shows as well as pause or rewind a program on demand. And remember, all of these features have to be packaged in a reasonably lightweight, energy efficient and reliable package at a price point that the average consumer finds appealing.

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On top of all that, consider for a moment that any device I mentioned above that will be used in conjunction with a modern television set also must be designed from the ground up to mesh seamlessly with not only TVs, but any number of other computing or communication devices, as well as apps and new operating systems that manage any number of industries, products or data streams.

Much the same thing is happening in trucking in logistics today. While autonomous trucks garner the bulk of the headlines in today’s transportation news, there is no aspect of logistics or trucking that is not undergoing a similar tidal wave of change.



refrigerated distribution center because trailer telematics fear a reefer failure — and act upon it safely and reliably, becomes apparent.

Of course, human drivers can perform these same functions and make the same adjustments as weather, shipping or road conditions change. But there are obvious safety and time considerations. And moreover, it is simply impossible for a human being to become a fully integrated component of this emerging global logistics system in a way that a “robot” truck can.

New fuels like hydrogen fuel cells and electric power are making inroads into heavy-duty truck powertrains.

The once time-consuming, clock-limited and tedious task of finding and contracting new loads increasingly is being taken over by a new version of information-sharing platforms that allow drivers to book freight at any time of day or night in a fraction of the time it took just a few years ago. Increasingly, shippers and consumers alike are demanding real-time, 24/7 information on truckloads of cargo. And they’re not just demanding to know where those loads are and when they will arrive, they also want full transparency of the cargo throughout the entire transportation process to make sure that critical temperature, environmental or timeliness requirements are being met for the entire duration of a haul.

Fast-evolving blockchain systems are allowing anyone concerned with a shipment to log in at any time of the day or night and check on the health and progress of a shipment. Telematics systems are rerouting trucks for faster repairs and increasingly working with artificial intelligence systems to give maintenance managers a deeper, and more insightful look into vehicle maintenance cycles, component wear and operational data than anyone would have thought possible just a few years ago.

As all of these system mature and begin to function together in a more and more complementary matter, the concept of a fully engaged truck, able to instantly process new data — anything from rerouting a delivery due to a traffic accident (while issuing an instantly updated delivery time as a matter of course via blockchain) to rerouting a food shipment to a

It really is this vision that is driving much of the development of autonomous trucks today. The ultimate goal of these designers is not to simply take drivers out from behind the steering wheel. The goal will be to create a whole new type of deeply integrated and highly adaptable transportation system that virtually never stops rolling and constantly works to find freight and move it in the most economical and efficient manner that multiple integrated technologies working in unison can deliver. Which is to say that autonomous trucks will not simply be a new type of vehicle. Rather they will be a new type of vehicle that works flawlessly within the constraints of an entirely new information system that will eventually span the entire globe.

It is a breathtaking vision of integrated technologies working together to deliver levels of functionality and efficiency beyond the capabilities of the best drivers and logistics managers. And it is a technology package that will soon transform our world.

**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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