



AUTONOMOUS VEHICLES

IN INTERMODAL TRANSPORTATION



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The advent of autonomous freight delivery vehicles is emerging as a huge topic in transport logistics worldwide. The idea of more precision and automation in freight movement is attractive to the industry, and in some regards, will reshape the structure of some logistics systems.

In the United States, there are two key developments that are accelerating the need for this innovation, especially as they relate to road transport:

1. The increasing driver shortage in an improving economy: There is an aging truck driver population at a time when economic opportunities are better in other industry sectors that don't have the challenging away from home burden/requirement for overnight travel.
2. US federal regulations: These restrict driving hours for safety reasons because of the expanded requirements for Electronic Logging Devices (ELDs) that accurately record driver working hours to comply with US safety standards

Both of the above developments are shrinking driver supply at a time when

freight volume demand is at an all-time high and this is causing stress to the overall road-bound logistics system. These factors have had the effect to increase the overall cost of trucking, and this trend is likely to continue until such time that technological advances in road transport are commonplace (and their development costs can be easily amortized).

THE CHOICE WE MUST MAKE

Beyond expectations for dramatically enhanced operational efficiencies, advocates of autonomous freight delivery vehicles recognize that there are also costs in not developing safer travel alternatives. This is especially true with regard to the insurance and legal liability costs associated with road injuries and fatalities. 37,000 people died in driving fatalities in 2017 in the US alone. With this in mind, there are increasing calls for further separation of car from truck traffic to an extent that is as much as humanly possible.

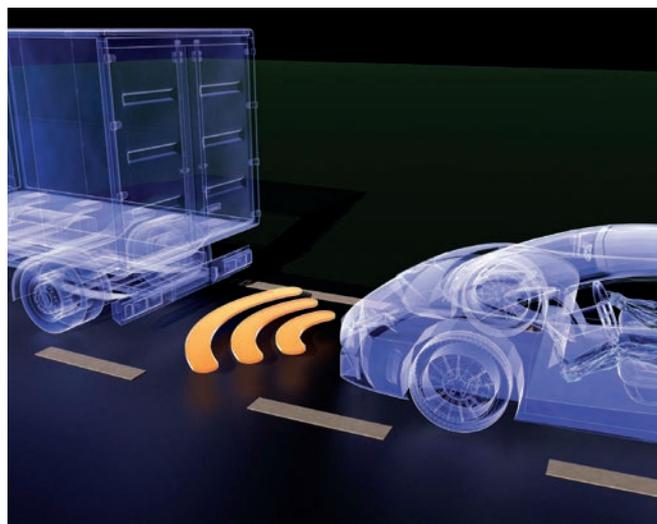
Some trucking industry advocates claim that if all of the cars on the road are separated from trucks for safer driving

purposes, then safer truck transportation would be the inevitable result. Having said that, it is very difficult – if not impossible in many places – to create completely redundant road infrastructure to separate the two classes of vehicles; eventually the twain will meet.

While there will be new and specific instances of truck-only thoroughfares, what seems more likely is the parallel development of autonomous trucks and autonomous cars, so that both can share the roads more safely than at present. With that said, we are seeing more truck-specific road infrastructure planning at and around key load-centre seaports where there are extremely high-levels of truck congestion.

POLITICAL ISSUES

In the meantime, individual political jurisdictions within the US are working out how autonomous trucking could be introduced in a practical way, and this is proving to not be an easy task in a federal political system. For example, in a number of states and coalitions of states, there are trials that are testing truck platooning



with perhaps one driver for three or more trailers. But how do states coordinate with a larger national system to in order to get these concepts implemented? The Federal Government will want a uniform solution that would apply to all 50 states (which will be welcomed by industry).

A federal solution is in the works, as this will be the only logical and efficient way to implement autonomous trucking throughout a large, complex country. According to statements by US Transportation Secretary Elaine Chao in January, 2018, at the North American International Auto Show in Detroit, a new tech-neutral and flexible approach to Obama-era regulations will aim to remove "unnecessary obstacles" with regard to the development of self-driving cars and commercial vehicles.

In 2018, according to a Secretary Chao, the Trump administration plans to revise and present guidelines for self-driving vehicles for the summer. The government is hoping to rewrite regulations that have been accused of posing legal barriers to the autonomous vehicle industry. According to Chao, the guidelines would apply to "barriers to the safe integration of autonomous technology for motor carriers, transit, trucks, infrastructure and other modes."

OPENING MINDS TO NEW DESIGNS

How different are truck designs for next-generation autonomous vehicles? The future reality could be a completely redesigned concept of what a truck looks like. A futuristic truck could, for example, have a 70-foot long trailer and come with a driver/monitor sitting in a chair remotely as one would in a simulator booth, or the vehicle might function as a fully autonomous vehicle.

Because of the intermodal nature of freight transport, whatever design solutions evolve with trucks, trailers will by

necessity affect freight rail and ocean vessel design, as the "containers" carrying the freight will often need to be transferred between truck, trains, and marine vessels.

Beyond the payload itself, individual railroads and vessel operators are also experimenting with autonomously driven trains and ships (NYK shipping line, Rolls Royce and Wartsilla being specific examples of major companies experimenting with autonomous vessels). Autonomous air transport is now a reality with the advent of drones, and drone technology is now being used to train commercial pilots. However, as with trucks, the question is whether ships, trains, or planes would be completely autonomous with a "driver/monitor" sitting in some remote location, or if there would be someone on board to intervene as needed in the event of an autonomous-mode failure.

A LOOK TO THE FUTURE

The proliferation of autonomous vehicle concepts requires the necessary ability to test any concepts in "real life" conditions. Silicon Valley has now clearly become the global centre for vehicle autonomy and advanced propulsion system development. A large-scale global project has been developed there to support the testing, development and product production for next-generation autonomous product development.

The California AutoTech Testing and Development Center is a global hotbed for passenger and freight movement technologies, with OEM's and leading technology suppliers present onsite in a highly dynamic environment. Interestingly, the Port of Los Angeles is a partner in this project, and their interest is driven by the port's leadership role with inland transport modes, as well as with on-port cargo movement technology.

As it was in the case of the advent of containerization, the development and

introduction of autonomous vehicles in freight transport could be the next innovation that revolutionizes the global logistics industry beyond recognition.

ABOUT THE AUTHOR

Brendan Dugan has spent the whole of his career in the maritime and seaports sector and has held a range of senior management positions across North America, the UK and Europe. He has worked in both seaport management and corporate international shipping and his experience includes strategic leadership, marketing and business development, operational management and also the management of many significant asset development projects. His past posts included roles at the Port Authority of New York and New Jersey, the Port of Tacoma, the Massachusetts Port Authority and Ports America. Brendan has had management assignments in Europe, the Middle East and Africa with many years based in the UK, Germany, and France.

ABOUT THE ORGANIZATION

Global Logistics Development Partners is an independent international investment advisory firm that creates and executes growth solutions for manufacturing companies, and public and private logistics and property asset owners and investors. GLDPartners was founded in 2010 to address opportunities created by shifting global trade and logistics patterns, changing public policies and evolving markets. The Company has offices in the US, UK, Canada and in Mexico.

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