



Futuristic Opportunities in AV (Automated Vehicles) Freight Ecosystem: Expanding Middle-Mile Terminal-to-Terminal and First-Last Mile AV Movement

On June 18, 2024, ITS America's AV Freight Working Group held a panel discussion on the future of AV freight and how to continue to build out the existing infrastructure and AV freight ecosystem. Private sector experts from across the industry were joined by a partner from the Dallas Fort Worth Metropolitan Planning Organization (MPO) to provide their perspectives on future opportunities and expanding middle mile terminal-to-terminal and first-and-last mile AV movement. The panel was moderated by **Zeke Reyna**, the Emerging Technology Portfolio Project Manager at Texas Department of Transportation (TxDOT) and co-chair of ITS America's AV Freight Working Group.

Panelists:

- **Gerardo Interiano** is the *Senior Vice President of Government Relations and Affairs* at **Aurora**. Aurora is a self-driving vehicle technology company that has been operating in Texas for several years, with trucks running daily and carrying freight from Dallas to Houston and from Fort Worth to El Paso.
- **Rich Steiner** is the *Head of Policy and Communications* at **Gatik**. Gatik focuses on autonomous short haul B2B logistics, transporting goods between the micro fulfillment centers, smaller distribution centers with limited access, retail locations, and other convenient local pickup points. The company helps optimize safety by delivering goods on repeatable, predictable routes to mitigate some of the challenges of operating autonomously.
- **Dan Goff** is the *Director of External Affairs* at **Kodiak Robotics**. Kodiak is a developer of autonomous long-haul trucks and was the first autonomous trucking company to build operations in Texas. Kodiak trucks have delivered over 5,000 loads and driven over 3 million miles to deliver freight for a range of commercial partners. Kodiak Robotics is working with the U.S. Department of Defense to adapt technology for the needs of offroad or cognizance vehicles.
- **Natalie Bettger** is a *Senior Program Manager* at the **North Central Texas Council of Governance** (NCTOG). NCTOG is the MPO for the Dallas-Fort Worth region, working with partner agencies to implement projects across the region. The agency provides funding for AV and freight providers to operate facilities in the Dallas-Fort Worth region.

Discussion Highlights:

1. What are the determinants of areas of operation for AVs and what factors do innovative public partners want?

Gerardo Interiano: First, it is important to have a foundational understanding that freight is a business and that there is a huge mutual opportunity to have a real impact given that the primary focus is on the movement of freight and goods. Secondly, it is the regulatory climate, looking for a place and partners



that are predictable when making long-term investments into communities that Aurora can deploy and deliver benefits successfully. Other states have started to look towards Texas as a model of how to work with industry and government to safely deploy this technology.

Rich Steiner: From the commercial perspective, deployment needs to be done where it is most useful to customers based on routes, and where the most value can be achieved when entering long-term contracts. Texas is the epicenter of commercial deployment for Gatik and our customers have grown closer to consumers and semi-urban areas over the years. Efficiency and safety are achieved through transporting high-priority goods by day on the same route as lower-priority goods by night for a different customer. Each route is rigorously mapped and objectively assessed for collision risk avoidance. New deployment sites can only be achieved with the right partners.

Daniel Goff: 25 states have now passed autonomous vehicle bills. Texas has been a unique place to operate in that there is a depth and openness to new technologies in the partnership. It is necessary to work with stakeholders throughout the system to build understanding and trust.

Natalie Bettger: NCTOG is looking for partner agencies that want to work collaboratively to allow our system to flow freely. Agencies look for industry to help solve mobility, safety, and air quality issues through technology.

2. What are the key steps taken when building out infrastructure with the idea of long-term AV deployment in the region?

Daniel Goff: It is important to operate with the current infrastructure and it is up to developers to prove that this technology works to bring safety, efficiency, and sustainability benefits to the public.

Rich Steiner: Gatik invests in the local community through recruiting local AV operators and safety drivers when a deployment and operations hub is set up. When entering a market, there must be a considerable number of routes in which customers will see benefits.

Gerardo Interiano: Aurora is happy to take more data when it is available and then figure out how to leverage it to ensure the safety of the system. We can also invest infrastructure in relationships such as working with law enforcement and local communities. It is about building trust and valuing community engagement when companies enter a community.

3. How do you see the AV freight ecosystems expanding and what are the next steps for autonomous freight movement?

Rich Steiner: Towards the end of this year, Gatik will start to operate at a meaningful scale that we call *Freight Only*. As industry starts to see more and more trucks on the roads without a human operator on board, partnerships are going to become more important than ever. No surprises are a critical component of everything that companies do. Companies must keep those commitments and work very closely with partners as they scale up. There is no reason there could not be a future in which there are several prominent companies in the space with different use cases, moving goods, and different segments of the supply chain. For example, to a last-mile company, you start to see complete supply chains becoming autonomous eventually. That's a way off from now, but certainly there's no reason why that's not possible



as the industry heads towards something such as AV 6.0.

Gerardo Interiano: One of the greatest opportunities that Texas already has and that ITS America members should be interested in is what are the best practices and lessons learned given that Texas has had so many companies piloting and working towards this initial launch in this initial deployment. Also, we have to start thinking of how companies standardize some of those things that Texas has learned. For example, this could be work zone data.

4. What are the best ways to share information across the industry?

Gerardo Interiano: Today we can start by being good drivers on the road, which is helpful for the industry in the long term and benefits all our companies. It's about figuring out how the industry can standardize signage and work zone data to the degree that everyone can have a better idea of what is coming up on a highway. Drivers today would appreciate having consistency. The more everyone can work closely together on the lessons learned in Texas, the more states will be able to benefit across the country. The next step is to continue to expand. The more that the industry can do on issues such as first responders, data sharing, and work zones, the smoother the deployment will go long-term.

Daniel Goff: This technology is about integrating new and more efficient technologies into an existing supply chain that is already hyper efficient. It's going to take time to get to that first driverless delivery. For right now at least, this technology is most valuable on those long-length haul deliveries, where it is hard to find drivers to do that work. It's going to be a lot of work to find the right way to integrate this technology into companies that deliver freight every day.

Natalie Bettger: One way is to use the data available from our public sector agencies, which gives you information on the system's operation and then the work zone data exchange elements within the region. Standardizing this data across our jurisdictional boundaries across operating agencies with the baton pass between systems can be helpful. You might need different data than what is coming from them, so that kind of baton pass as they transition through different facilities within our region would be useful for them to understand and get data. Creating forms of connectivity between all the entities will be helpful.

5. Question from Audience: What is the importance of having an automated distribution system as the link to customers?

Rich Steiner: Gatik's process of trucks operating a delivery is that it will arrive at a customer location, such as Walmart, and the workers will load the goods into the back of the truck. The truck will then drive with the goods to the drop off location and the Walmart associate at the drop off location will take the goods out. There is still a human involved in that piece, and it looks slightly different from customer to customer. Automation will come in potentially more and more there. The industry won't see it in the immediate future, and for now, our responsibility is transporting goods again autonomously from point to point, however we can integrate usefully within our customers.



Conclusion:

The future of the AV freight ecosystems lies in the partnership between the public and private industry. Automated vehicle freight solutions should operate on the current infrastructure, and it is the responsibility of innovators to prove the technology works to make communities safer, more efficient, and more sustainable. Building trust and engaging with the community that an AV freight company enters is crucial to the success of this technology. ITS America continues to support the deployment of AV freight to help improve the safety and sustainability of our roads and looks forward to increasing partnerships between the public and private sector on making our Vision Zero goals become reality.