Cooperative Automated Transportation Systems - Observations and Trends

Article #3: Data

Our previous article spoke to the importance of partnerships, with an ultimate goal of maximizing safety. Beyond the traditional sharing of resources that often marks a successful partnership, the sharing of data has also been recognized as a critical step along the path to cooperative automated transportation.

Since safety is a primary goal for most in the transportation industry, why are there private-sector stakeholders who openly display reluctance to share data - or in some instances, why is there a perception that this unwillingness exists even if it isn’t reality?

Through a series of in-person and virtual scan tours over the past 18 months, State and Local DOT leaders have explored this issue (among many others), and discovered that constructive conversations can often mitigate the challenges of data sharing that will ultimately be a critical element of future partnerships. The meetings were organized through the National Cooperative Highway Research Program (NCHRP) project 20-24(128), State of the Art Review of Cooperative Automated Transportation Systems.

A data sharing dialogue can get off to a better start if there is an **outcome-oriented** focus. Public agencies don’t always do a good job identifying what they need to know, and often just say "give us everything and we’ll figure it out later," which can raise privacy and competitive red flags for private industry. Public agencies should focus more on the desired outcomes as opposed to the inputs, how to achieve those outcomes, and what can be achieved together in terms of safety and efficiency by identifying the necessary information to achieve those outcomes.

As our industry progresses at better refining “the ask,” the next opportunity to increase sharing is by emphasizing **data standardization** in future research efforts. One technology company suggested three ways to view data standardization: (1) how to ingest data into the cloud, (2) how to share data internally to your organization, and (3) how to share data externally with other partners, developers, and consumers.

Public agencies have something to offer too, by making data sharing a **two-way deal**. Infrastructure owners/operators have static data on the use of their physical infrastructure (such as historical travel data and geometric configurations), and more importantly are often the source for dynamic information (such as work zones, special events, and weather). A symbiotic relationship looks likely in the future in that DOT’s will receive private data for use in their operations centers and feed it back into the system, which ultimately results in a better service to the private companies tapped into the broader system.

Dialogue alone won’t solve every hurdle - cybersecurity, privacy, and politics are all potential challenges that must be overcome. But they CAN be overcome, or at least mitigated, through proper planning and communication. A collaborative environment that recognizes the complexity of cooperative automated transportation but allows each partner to contribute and benefit will ultimately result in safer and more efficient transportation.

*This article is part of a series covering high level observations and trends that have emerged as part of NCHRP 20-24(128). Previous articles covered Partnerships. Future articles will cover topics such as Organizational Readiness for CAT, Technology & Planning, People, and more. The opinions and conclusions expressed or implied are those of the panel members or research agency that performed the research and are not necessarily those of the Transportation Research Board or its sponsoring agencies.*