



0-6803-01: The Texas Technology Task Force

Background

This phase of work on the Texas Technology Task Force project focused on transformative technology discovery and expanding the portfolio of emerging technologies beyond the technologies identified in earlier phases. Previously, the portfolio was limited to autonomous vehicles, connected vehicles, cloud computing and crowdsourcing, and electric systems. The research team, under the direction of Texas Department of Transportation leadership and industry experts, expanded the portfolio to include revolutionary technologies such as drones, 3D printing, virtual reality, and advanced materials. A motivation factor behind the portfolio expansion was to make sure that it encompassed newly developed technologies not on task force radar in earlier phases and to also expand focus by selecting technologies that apply across multiple modes.

What the Researchers Did

The research team completed the following six tasks:

1. Reconvene the task force.
2. Expand the emerging technology portfolio.
3. Identify critical technologies.
4. Develop white papers on critical topics.
5. Develop a transition plan for the next phases of work.
6. Coordinate task force meetings.

The primary research methods used were:

1. Task force member interviews.
2. Literature and media syntheses.
3. Development and application of the technology evaluation framework.
4. Subject matter expert interviews.

What They Found

The team developed strategies for transportation agencies to use when promoting emerging

technologies for two program areas (white papers 1 and 5) and three technology areas (white papers 2, 3, and 4). The recommended strategies are listed below.

Understanding the Customer of the Future

- Study the customer profile using the latest technology. Transportation agencies can leverage relevant data to provide customers with a personal and valuable experience.
- Discover the customer experience. Understand the five factors that are shaping the customer experience, and use technology to strengthen customer engagement and build their brand.
- Respond to consumer behavior. Be prepared, and incorporate new strategies into planning efforts.
- Exceed customer expectations by going above and beyond to empower the customer to become a brand advocate. By providing quality traveler information, roadway maintenance, and roadside assistance services, transportation agencies can increase customer satisfaction.

Formulating a Communications Strategy

- Know the stakeholders by developing customized communications strategies tailored to specific interests. This ensures that each stakeholder's contribution is valued.

Research Performed by:

Center for Transportation Research

Research Supervisor:

C. Michael Walton, CTR

Researchers:

Andrea Gold, CTR

Kristie Chin, CTR

Jia Li, CTR

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- Build the agency brand by developing policies and guidelines on applying brand identity. Ensure that materials used in all stakeholder communication channels convey a coherent message.
- Engage through multiple channels and orchestrate the customer experience across all layers so that it is seamless, integrated, and consistent.

Revolutionizing the Global Logistics Industry

- Understand the full suite of technologies, which is critical for integrating them into logistics services and supply chain management.
- Develop an interface between modes to provide for the optimum use of all of the state's transportation modes for freight movement. When modes interface well, paths for goods movement increase as congestion and delay decrease.
- Identify future markets and influences, and monitor them to provide indications to transportation agencies on the amount and types of freight movement that need to be accommodated.

Understanding Opportunities and Challenges of UAVs

- Monitor Federal Aviation Administration (FAA) rulemaking and regulations, and take advantage of other key initiatives for unmanned aerial vehicle (UAV) integration supported by FAA.
- Identify commercial and civil applications. Plan for their operations, learn from their trials, or partner with them for their own trials.
- Discover and mitigate operational obstacles and barriers. Anticipate them, and have a mitigation plan in place to increase the safe integration of UAVs.

Managing Customer Relationships Using Big Data

- Capture data by collecting real-time data and relaying information to the customer. This can inform travel decisions that generate immediate value.
- Integrate silos of information by shifting from a single source to a multi-source, multimodal approach. This approach creates a comprehensive, data-rich environment from which state, regional, and local agencies can draw valuable information about their customers.
- Analyze for insight by matching the right tool to the right problem. This enables the transportation agency to effectively communicate to the decision maker the best course of action for the customer.
- Measure performance by developing a system of key performance indicators. This system monitors the health of the enterprise and evaluates if a transportation agency is achieving the goals it defined.

What This Means

If pursued, these actions should help make Texas a leader in the development and commercialization of emerging and ultimately disruptive transportation technologies. These actions should further the state's economic development and ultimately lead to a safe, efficient, and sustainable transportation system.

In its next phase, the task force will assist in the development of a vision for the future of Texas transportation in order to narrow down the technologies in the portfolio to those that demonstrate the greatest business potential.

For More Information

Project Manager:

Darrin Jensen, TxDOT, (512) 416-4730

Research Supervisor:

C. Michael Walton, CTR, (512) 471-1414

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Research and Technology Implementation Office

Texas Department of Transportation

125 E. 11th Street

Austin, TX 78701-2483

www.txdot.gov

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