



**MAVSOTECH**



# **Advanced Automotive Audio**

**Transforming the In-Cabin  
Experience with Psychoacoustics,  
AI, and Connectivity**

# Advanced Automotive Audio: Transforming the In-Cabin Experience with Psychoacoustics, AI, and Connectivity



## Executive Snapshot: Key Market Signals (2024–2025)

The automotive audio and connectivity landscape is undergoing a profound transformation. New data from 2024–2025 underscores just how central connected, personalized, and immersive audio experiences have become—not only to driver satisfaction but also to the strategic differentiation of OEMs and their partners.

## Market & Consumer Trends at a Glance

Trend	2024 Data	2030 Forecast
Connected-car solutions market	US \$54.4 billion	US \$148.6 billion (CAGR ~18%)
Connected-car services market	US \$12.4 billion	US \$26.4 billion (CAGR ~13.3%)
Embedded telematics in new vehicles	75% in 2023	94% by 2028
Vehicles connected	~50% now	>90% by 2030
Internet-connected EVs	97%	
Audio entertainment market	US \$75 billion; 750m music subs; 1.7bn podcasts	
Demand for personalization	71% expect it; 76% willing to pay	
V2X public investment (US DOT)	US \$60 million awarded in 2024	

These figures—sourced from McKinsey, Deloitte, Cisco, and the U.S. Department of Transportation—signal a common direction: audio, connectivity, and intelligent in-cabin experiences are no longer luxury differentiators. They are core to customer value.

As explored in this whitepaper, the race is on to deliver richer, safer, more intuitive cabin environments. To succeed, OEMs must embrace cutting-edge acoustic and software innovation and foster strategic collaboration with connectivity partners. Domain expertise in engineering—like that offered by Mavsotech—is a crucial enabler of this transformation.



## Introduction

Today's drivers expect more from their vehicles than ever before. According to McKinsey, over 90% of new vehicles will be connected by 2030, up from around 50% in 2024.

Simultaneously, the demand for immersive and personalized experiences is reshaping how automakers design in-cabin systems. The global audio entertainment market alone surpassed \$75 billion in 2024, with over 750 million music streaming subscribers and 1.7 billion podcast listeners.

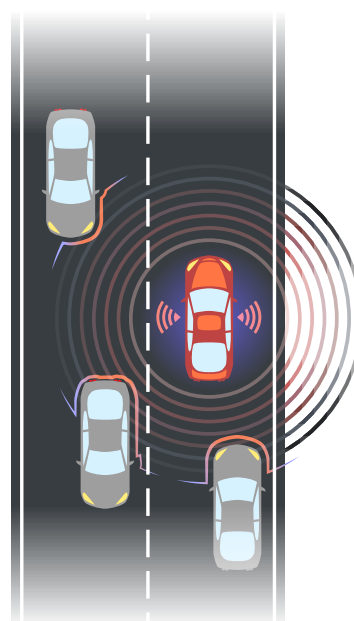
This is not a niche evolution—it's a consumer shift. Drivers under 45 now list in-cabin entertainment and connected services as top decision factors when selecting a vehicle. Yet, a gap remains between expectation and delivery: only 17% of customers report satisfaction with current in-vehicle tech. The challenge for OEMs, Tier 1s, and platform vendors is not just meeting these expectations, but doing so with agility, integration precision, and cross-domain collaboration.

Mavsotech offers a critical advantage in this environment: specialized engineering and integration capabilities across audio software, connectivity platforms, embedded systems, and testing workflows. In this whitepaper, we examine three strategic pillars reshaping automotive audio—safety, personalization, and usability—through the lens of today's most urgent data and challenges.

## Audio-Driven Safety: More Than Just Alerts

With 97% of EVs now connected to the internet and real-time communication capabilities expanding through V2X and DOT-backed infrastructure, the in-cabin audio system is emerging as a real-time safety interface. Audio alerts spatially rendered through psychoacoustic techniques not only improve driver reaction time but reduce visual dependency.

As the U.S. DOT invests \$60 million to accelerate V2X deployments, Mavsotech enables OEMs to capitalize on this trend—isolating emergency sirens, localizing them to the driver's rear-left quadrant, and shifting that cue in real time based on vehicle telemetry. These enhancements elevate auditory cues into a sensory co-pilot, aligning with global initiatives to reduce distracted driving and collision risks.



## V2X: Transforming the Cabin into a Connected Safety Node

V2X (Vehicle-to-Everything) communication is reshaping how vehicles interact with their environment—and how drivers experience real-time audio cues. V2X enables cars to communicate with:

- **V2V (Vehicle-to-Vehicle):** Helping prevent collisions through directional audio warnings based on other vehicles' speed and trajectory.
- **V2I (Vehicle-to-Infrastructure):** Delivering localized alerts about traffic signals, construction, or emergency vehicles via the cabin's speaker system.
- **V2P (Vehicle-to-Pedestrian):** Increasing situational awareness when pedestrians or cyclists are detected nearby.
- **V2P (Vehicle-to-Pedestrian):** Increasing situational awareness when pedestrians or cyclists are detected nearby.
- **V2D (Vehicle-to-Driver):** As personalization becomes a safety imperative, real-time cues—modulated by driver behavior, preferences, and even fatigue level—enable in-cabin systems to act as adaptive co-pilots.

Mavsotech's real-time DSP integration and connectivity protocol expertise allows OEMs to synchronize these V2X signals into coherent, context-aware soundscapes—creating safer, more intuitive environments in motion.



## Personalization: From Commodity to Differentiator

With 71% of consumers expecting personalized interactions—and 76% willing to pay for them—OEMs are recognizing that generic infotainment won't cut it. Psychoacoustic engineering allows limited speaker setups to simulate premium immersive soundscapes, while AI continuously adapts the listening profile based on vehicle speed, ambient noise, and user behavior.

Rather than treat this as an add-on, leading OEMs are positioning sound as a core brand experience. Mavsotech's integration of AI-enhanced sound personalization, upmixing of stereo content into spatial audio, and seat-specific acoustic tuning transforms budget constraints into competitive advantages.

## Usability & Voice AI: The New Interface Battleground

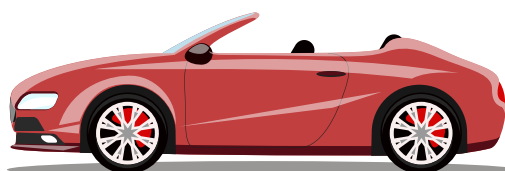
With 750 million music subscriptions and 1.7 billion podcast listeners globally, vehicles are becoming a central hub for content consumption. Layered on top of this is a surge in driver demand for seamless voice control. Natural language assistants and auditory feedback are no longer experimental—they are expected.

OEMs, however, face systemic barriers: fragmented SoCs, regional content partners, platform dependencies, and regulatory hurdles. Mavsotech reduces time-to-market for these integrations through embedded development support, full-stack audio validation, and DSP porting optimized for automotive-grade chipsets.

## The Connectivity Mandate

McKinsey projects that 95% of new vehicles will be connected by 2030. Operators like Charter, Cox, and Rogers aren't just telecoms anymore—they are partners in delivering content, bandwidth, and low-latency services that power in-vehicle entertainment, OTA updates, and dynamic audio alerts.

OEMs must shift from siloed development to collaborative ecosystems. Mavsotech acts as a translator and integrator between automotive systems and telco networks, ensuring cloud-based features (e.g., AI assistants, live streaming, OTA sound tuning) perform without latency or service degradation.



## Looking Ahead: The Era of Software-Defined Vehicles

The transformation of the in-cabin experience is part of a broader shift toward software-defined vehicles (SDVs). Companies like Google are pioneering modular, updateable architectures where components like maps, video, and audio can all be enhanced via software. In May 2025, Google announced expanded support for Gemini AI in Android Automotive OS, enabling dynamic, context-aware experiences across navigation, messaging, and in-cabin audio. Volvo's EX90 is the first vehicle to integrate Android 15 and Gemini for true conversational driving support.

In this model, sound becomes dynamic—not static—capable of evolving based on user preferences, vehicle context, and even business models. Mavsotech helps OEMs build toward this future with integration frameworks that allow for OTA audio personalization, seamless app-layer updates, and adaptive soundscapes tied to user profiles. In a software-defined world, audio is not just part of the experience—it is the experience.



