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Sound and silicon: how audio is evolving the connected car

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Car audio plays an increasingly critical role in supporting the evolving car interior by creating new occupant experiences to meet the demands of the most connected generation in history, writes Chris Ludwig

When you imagine a world in which self-driving cars are the norm, it's clear that traditional vehicle architecture is quickly becoming a thing of the past. Perhaps surprising to most, car audio plays an increasingly critical role in supporting the evolving car interior by creating new occupant experiences to meet the demands of the most connected generation in history. Despite the common refrain that people are not buying cars like they used to, more than half of today's consumers desire a more personalised in-car experience. At the same time, the car continues to be the primary place people prefer to listen to music and other entertainment, and this especially rings true for younger individuals.

The average vehicle owner spends 11 hours in the car each week, so it's no surprise that having high quality audio continues to be a 'must'. Over 50% of new car buyers tend to upgrade to a premium audio system when selecting a vehicle and 65% believe it increases the resale value. However, speaker count and booming bass is just not enough – people expect integration with their connected lives.

It's important for the automotive industry to rethink premium audio as a connected technology to make a highly personalised and adaptive in-car experience possible in a way that is cost-effective for both vehicle manufacturers and consumers. Another perk from injecting silicon into the car audio market is that it creates more tailored solutions, allowing the industry to more effectively target key markets such as millennials or luxury.

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Millennials' experiences in the car are different to previous generations. They prefer to use economy-sized, eco-friendly vehicles. While this demographic may be waiting longer to purchase their first car or exploring other ownership models, 70% consider technology features very important for cars to have. Creating new opportunities for seamless connectivity and value for money are key to innovating car audio for the millennial market, with the added challenge of overcoming the constraints of a smaller, lighter vehicle cabin.

To innovate, engineers have to question the standard ways of thinking: What if the car audio system doubled as a portable stereo? What if the audio system could be simultaneously connected to all the passengers' devices? What if the speaker output was optimized to the type of content being played? Premium audio is no longer just for luxury buyers or audio aficionados, and there's significant opportunities for companies that can offer experience-seeking millennials more freedom in how they can connect and interact in the car.

As premium audio becomes more accessible, it begs the question: how can we differentiate systems for discerning luxury buyers in the age of the connected car? First off, it helps to define what luxury means for buyers today. Luxury is about buyers having unlimited choices instantly available at their fingertips. Luxury is about buyers' needs being met before they are aware of them. Rather than needing to buy a whole new car or aftermarket stereo each time a new technology hits the market, the next generation of connected audio systems can be upgraded with new features via over-the-air (OTA) updates.

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Just like smartphones, cars could continually improve themselves over time, keeping pace with the latest connectivity trends and adapting to passenger habits and preferences to improve every aspect of the in-cabin experience.

Picture this: vehicle occupants listening only to what they want to and need to hear in the car thanks to personalised sound zones, booming bass delivered right to the appropriate seat, with occupants listening to their favourite Miles Davis track acoustically mapped to sound exactly as it would live in a 1960s smoky New York City bar – all available at the tap of an app. Reimagining audio as a scalable software platform benefits vehicle manufacturers as well, making it easier to improve their products with significantly less part complexity and manufacturing costs. Audio experiences that would typically require additional components and hardware have been reduced to a single computer chip. Amplifying these savings, offering OTA upgrades through consumer apps also opens up new revenue streams for vehicle manufacturers.

It's the new era of the connected car: audio is no longer just about great sound or entertainment. Acoustic technology can be leveraged to promote passenger comfort and a safer drive. For example, audio systems are already being employed to silence road noise – a proven contributor to driver fatigue – through the use of software algorithms that generate 'anti-noise' waves, which is highly cost effective and environmentally friendly compared to traditional dampening methods.


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Exciting new technologies such as augmented reality (AR) are also being leveraged for benefits beyond great sound. Combining AR with sound isolation technologies is increasing safety by decreasing cognitive dissonance for drivers, helping them to respond faster and more accurately to navigation prompts. Gesture control technology also provides a buffer against in-car distractions, empowering both drivers and passengers to control things such as phone calls, navigation prompts and music, and transfer sounds between areas in the cabin without touching any interface or dials.

It's clear that the way we think about driving is already beginning to change as the sharing economy, hyper-connectivity, and self-driving cars impact the future of transportation. The time spent in the car will be used to work, to play, to listen to music and to connect with others – both inside and outside of the vehicle. The next wave of premium audio will layer user experience on top of premium audio to not only enhance our in-car experience, but actively shape what is possible inside the connected car.

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