



## From Passive to Active: The Next Step In Human-Machine Interaction

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Cerence has long created unique mobility experiences for automakers around the world through advanced AI technology that enables voice assistants to intelligently interact with drivers. Today, our OEM customers are accelerating the deep integration of voice interactions with smart cockpits to create in-vehicle voice assistant features that provide an upgraded user experience for drivers and passengers. At the same time, cloud-based services, natural language understanding, multimodal interaction, and the content ecosystem are all constantly and rapidly improving.

But beyond this ever-improving technology, the in-car user experience is key to increasing drivers' love and long-term usage of voice assistants. So, what kind of experience could even better meet the needs of users? What will be the trend for the next phase of voice interaction?

The answer: proactivity. The next generation of voice assistants will be able to anticipate drivers' needs and offer them information – before they even know they need it. There are a few critical elements that will enable this:

### Timing

Our voice assistants are constantly improving by analyzing users' reactions and behavior. We fuse context, information from the car's sensors, and data, and use intelligent algorithms to determine the right timing for proactive notifications like, for example, ordering your morning coffee when you're a mile away from the coffee shop you stop at daily.

### Information

Knowledge about the outside world is critical for proactivity, and weather is the perfect example. If we know the driver is about to face a snowstorm, we can proactively offer to move into wet road mode and turn up the temperature in the car, enhancing drivers' safety and comfort.

### Mode of interaction

It's not just about what we say, but also how we say it. Is it a voice prompt, a message on the car's touchscreen, or something else? The most important thing is that the user can interact naturally and easily accept the prompt in the moment.

The next generation of human-machine interaction is not a simple voice interaction, but a passive-to-active transition. Active awareness not only provides automakers with practical ways to handle complex user requests through speech recognition, but also helps drivers discover features and functionalities that have been present but never used. Voice assistants with active awareness open up endless possibilities for in-vehicle functionality.

Cerence will continue to introduce new products and solutions that combine a diverse content ecosystem, new applications and personalized user experiences with innovative AI-powered voice products and solutions that make travel safer and more enjoyable. For the latest from Cerence, follow us on [LinkedIn](#).