

From service to retail, here's how the metaverse is reshaping the auto industry

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It's not science fiction anymore. Car owners may soon have their vehicles serviced with the help of augmented reality, and they may explore a virtual world while charging their electric vehicles. And get

ready for an otherworldly shopping experience.

The metaverse—or [virtual reality](#)—is reshaping how automakers serve their customers, and it could increasingly affect how motorists experience their vehicles, too. The use cases were on display last week at the CES consumer electronics trade show in Las Vegas, where several automakers shared visions of their technology futures.

Stellantis NV's Fiat said it will bring its virtual showroom with the help of Microsoft Corp. and Touchcast Inc. to North America when it begins selling the 500e city car here again next year. The all-electric Ram 1500 Revolution concept promoted a phone app with a digital measuring tool to help users determine how to fit equipment or other objects in the truck.

BMW's i Vision Dee concept car included a digital avatar on the window to greet the driver. A mixed reality slider can immerse occupants in a virtual world. And Microsoft's HoloLens can train vehicle technicians or connect them with remote engineers in a different country to resolve issues.

"The metaverse is a next generation of how we communicate better and help businesses do that," said Edo Segal, CEO of New York-based enterprise metaverse firm Touchcast. "You don't have to wait. That technology is available today."

Virtual showrooms

When Fiat announced in November at the Los Angeles Auto Show that the new electric 500e was coming to North America in early 2024, the brand's CEO, Olivier François, emphasized the opportunity it presented to experiment with new retail opportunities.

One of those is a virtual showroom. Designed with Touchcast on the Microsoft Azure cloud platform and usable over the Microsoft Teams virtual conference program, the showroom connects car buyers with a salesperson, gives them a virtual tour of the interior and exterior of the vehicle, takes them on a virtual test drive and allows them to complete the buying process online.

Already launched in Italy, shoppers can access the showroom from their homes on a computer even without a virtual reality headset or other equipment. The showroom also could be made available in dealerships to give customers a look at a vehicle not on the lot or with a particular color or feature. Or it could be a way to reach customers in a mall or airport, said Sanjay Ravi, general manager for Microsoft's global automotive, mobility and transportation industry business.

"The opportunity to bring that experience to more people across the world at a fraction of the cost is pretty high," he said.

Touchcast at CES had an offer to make a "digital twin" of one vehicle and support for sales agents for six figures, Segal said, compared to seven or eight figures for other vehicle configurators.

Fiat isn't alone. General Motors Co. has a similar "MyWay" virtual showroom it launched in 2021. These experiences present the potential for another example of the industry's increasing centralization of retail driven by the direct sale model of disruptors like Tesla Inc. A salesperson can remotely connect with a customer and sell a vehicle from anywhere.

"You have unlimited inventory," Segal said. "You can see every color. If it's a Jeep, you can see all the attachments, so it doesn't just change the online journey. It also changes the future of what a dealership is, where the experts could be beaming in just like a Star Trek holodeck. If they

can be centralized by corporate, then you might bring in a specialist about electrification or a specialist around Jeep."

In the future, artificial intelligence might even be able to connect customers with a particular salesperson based on their buying experience, Segal added.

Stellantis has emphasized it'll continue to partner with its dealerships in the United States, especially in light of franchise protection laws. But the COVID-19 pandemic has accelerated efforts to connect with customers remotely, said Mark Stewart, the automaker's chief operating officer in North America.

"It's a toss-up right about how the market is really going to go, how many folks want to shop online 100% like a click from Amazon versus come into a dealership and see it, feel it, touch it test drive," he told The Detroit News. "What we want to make sure is that we've got offerings for the customer across the board."

Stellantis expects more than 40% of its sales will come from online sales in North America by 2030.

"We want all of the tools available to help the consumer to move forward with their decision," said Randy Dye, Stellantis' national dealer council chairman and owner of a dealership in Daytona, Florida. But he added: "We have people that work in our showrooms that are members of the same community that the people who are buying the vehicle live in. Generally, people like to connect with people, and people who are close that they can visit when they need something."

The technology offers uses after the point of sale, as well. Vehicles have more features than ever, from advanced driving assistance systems to entertainment and comfort options. The virtual showroom offers a way

for customers to ask a question and get a visual tutorial on all that their vehicle can do after purchase.

"One of the things I find as you get into some of these cars today, you don't even know where your safety hazard button is," Ravi said. "When you buy a car, if you can provide this immersive experience for somebody even when they're buying or after they've bought, saying, 'Here's a five-minute experience of what all of you can do' and have them go and touch and do everything by themselves. It's a lot more effective than sitting and watching a YouTube video on how to do things."

The buying process of a vehicle and having an understanding of all of its capabilities can be an arduous process, said Jessica Caldwell, executive director of insights at auto information website Edmunds.com Inc. Automakers are looking for ways to make it more convenient.

"There can be a learning curve," she said. "Virtual reality maybe sounds weird, and most adults may not be sure, but it allows brands to get in front of the education."

In-vehicle entertainment

Automakers also see metaverse applications for in-vehicle entertainment. Autonomy is expected to give the driver more free time, and occupants will have to find a way to pass the time when their electric vehicle is charging. Automakers made pitches on their vision of the smart cockpit's future from a pop-up panoramic screen in the Peugeot Inception concept to a music synthesizer in Chrysler's Synthesis demonstrator.

"When you're at a charging station, you've got a good 20 minutes of downtime," Chrysler CEO Chris Feuell told The News. "This is a good

way of providing gaming, entertainment services, as well as a synthesizer application where you can create your own music or if you want to do a yoga class or meditation."

Perhaps the most futuristic, though, was BMW's i Vision Dee (Digital Emotional Experience) concept. Not only does the vehicle's exterior color change on demand, the vehicle's sliding heads-up display can go from showing driving essentials like speed and navigation to social media feeds to a [virtual world](#) covering the windshield and windows like a fully immersive drive-in movie. A digital avatar on the exterior window can greet the driver.

"The only thing that really counts is what the user feels and experiences," BMW Chairman Oliver Zipse said about digital leadership during the company's CES keynote on Wednesday. "What you feel and experience when the car welcomes you. And I do not just mean with your name on the car. I mean when your car literally gets excited to hit the road with you. When you cannot tell what the difference anymore between what is real and what is virtual, because we tore down the boundaries."

Clearer timelines on the launch of hands-free and eyes-free driving are shaping the way automakers are thinking about what they have to offer buyers, Caldwell said.

"It's very futuristic," she said of BMW's concept. "I don't think most people are gaming while they're charging out there on the mass market, but this could be something that grows over time."

Service and manufacturing

Mixed reality has more practical applications, though, too. Toyota Motor Corp. and Mercedes-Benz have used Microsoft's Dynamics 365 program, the HoloLens virtual reality headset and augmented reality to

train vehicle service technicians instead of sending them to a regional hub. Nissan Motor Co. Ltd. has used the technology to train manufacturing staff. Ford Motor Co. has used similar virtual and augmented reality technologies to train technicians, as well.

The HoloLens also can connect technicians with an automaker's engineers over Microsoft Teams to find solutions to problems and walk through a fix. That can make servicing more efficient and get a vehicle back into the hands of a customer faster, Ravi said.

"If you can look at the same problem I'm dealing with and interact with me almost like you're standing next to me and helping you solve a problem," he said, "there's a huge value there."

Stellantis also has been experimenting with BlinkIn's Virtual Assist for similar applications in Citroën repair shops in India. That technology uses a smartphone.

The metaverse applications also are a recruiting tool at a time when there is a shortage of technicians, Ravi said, "These folks are using the most advanced technologies that sometimes even their managers don't have access to."

The technologies additionally have applications for remote quality and validation checks for suppliers, especially to avoid long-distance travel, he added.

"When we look at the once-in-a-century transformation that is going on in mobility, there is a lot of innovation at play, but there's also a lot of complexity that is coming together," Ravi said. "Vehicles are getting more increasingly complex. The manufacturing is getting more complex. What is really important here is not just about mixed reality and augmented reality. It's also about how we can use that environment to

collaborate with others."

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