

# CES 2020

## Consumer Electronics Show

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January 7–10, 2020

Mi Ae Lipe





# CES 2020 by the Numbers

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- 4 days
- 4,400 exhibitors
- 3 million square feet
- Over 175,000 attendees (65K international)
- Over 1,000 start-ups
- "Worst week in Vegas"



# Wow Factor

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- Audacious product releases, huge exhibits, splashy press events.
- More of an autoshow than the autoshow themselves.
- Many automakers debut new models and tech here.
- Ultimate speed-dating site for OEMs, tier 1 and 2 companies, and tech startups.



## CES 2020 Transportation Takeaways

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- Skepticism and reality are settling in with AVs.
- ADAS: Tech that saves us now.
- The savior of 5G.
- Lidar, lidar, lidar!
- Immersive passenger experiences are king.
- Interesting human interactions with technology.

Air taxi concept by Hyundai  
and Uber Elevate—  
a form of aerial ridesharing.



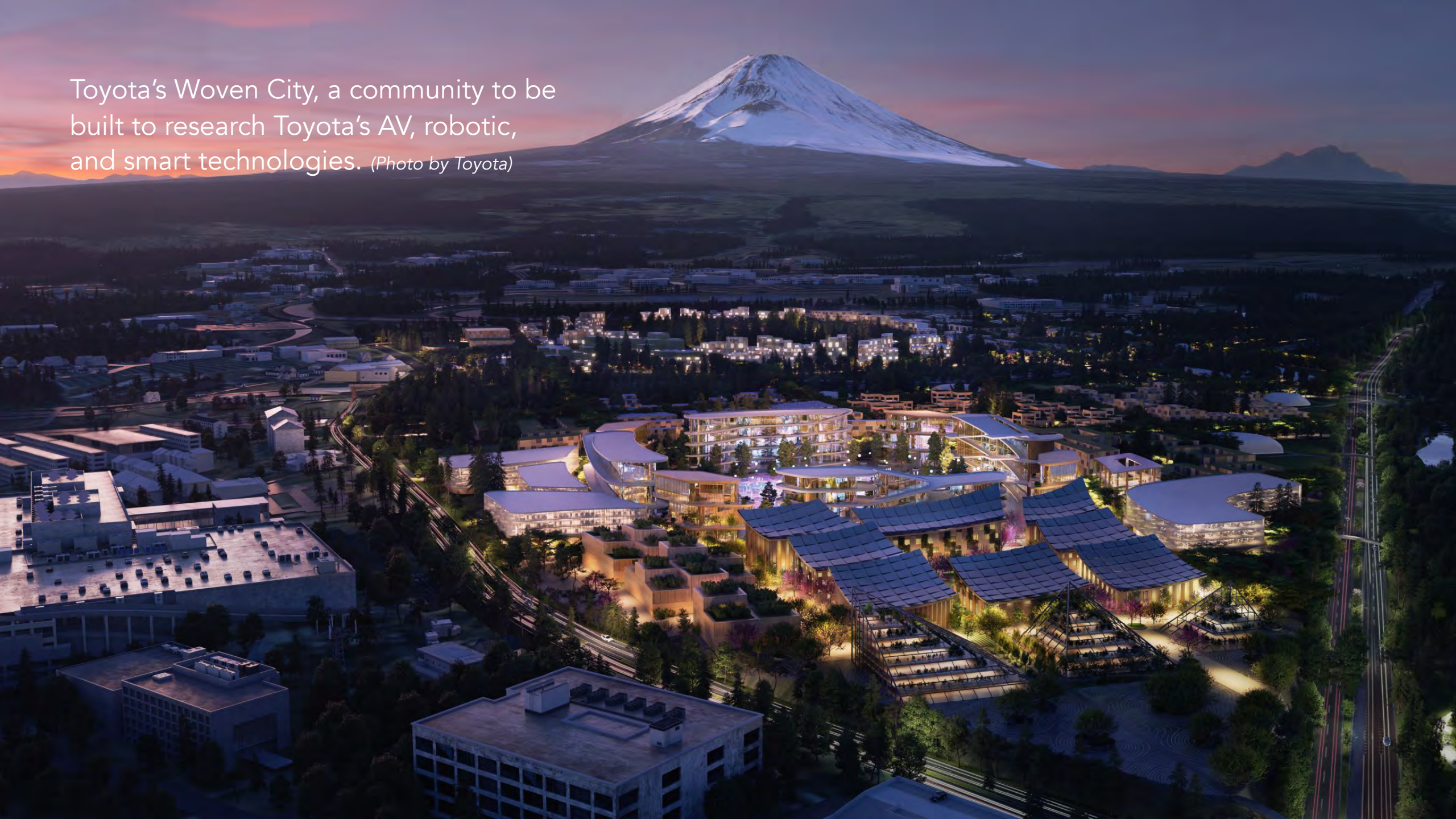


A scale model of Mercedes-Benz's VISION AVTR electric concept vehicle, inspired by the *Avatar* movie sequels.



Sony's Vision-S, an electric concept car showcasing its user-interface technologies. *(Photo by The Verge)*

Toyota's Woven City, a community to be built to research Toyota's AV, robotic, and smart technologies. *(Photo by Toyota)*





PACCAR displaying its battery-electric Kenworth K270E and a Level 4 autonomous Kenworth T680.





## Lidar, Lidar, Lidar!

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- Dozens of lidar vendors.
- Lidar much more accurately detects obstacle size, objects' distance from the vehicle, and other critical information than today's ADAS radar.
- Lidar maps surroundings in high-resolution and is what enables AVs to run.
- The most accurate, smallest, and economical lidar systems will win.



## BMW i Interaction

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- Concept design exercise showcases intuitive interactions between human and vehicle.
- Assumes AVs are commonplace; no steering wheel or dash controls.
- Windshield becomes panoramic display that offers three modes:
  - Explore
  - Entertainment
  - Ease

BMW's i Interaction environment uses eye tracking to give you more info about your environment and interact with it.





**Urban Garden**  
Pet-friendly eco tours

Book





## Faurecia's Trailer Assist

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- This French automotive company's products are in 1 out of every 3 vehicles worldwide.
- This trailer-assist tech automates unintuitive steering; driver uses a finger to move a needle on a touch-screen display to indicate the desired direction of travel.
- Driver must still accelerate and brake the vehicle.



## Steer Tech

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- Steer Tech is a Maryland startup that offers aftermarket driverless parking automation.
- Piggybacks on existing ADAS technology your vehicle to park itself or be summoned from a parking spot using a smartphone app.
- Applications: Car owner with a garage too narrow to open the car door, or a harried parent with small children in the pouring rain, or a woman who faces a long, dangerous walk through a dark parking lot.







## AV 4.0 Keynote

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- US. Secretary of Transportation Elaine Chao announced Automated Vehicles 4.0.
- AV development requires increasing collaboration and information sharing across state, federal, and private entities.
- The US government plans a light touch as these entities mingle.

# Conference Session: Collaborative Driving & the Future of Trust in Mobility

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<https://live.ces.tech/detail/video/6120440839001/collaborative-driving-and-the-future-of-trust-in-mobility>

- Lack of consistent global standards, a rush to get competing products to market, and industries hyper-focused on engineering and failing to think through consumer usability.
- MIT research scientist Bryan Reimer: “I fear that we’re searching for the next gee-whiz thing when we haven’t figured out how to use what we have and establish foundational things adequately.”
- ADAS are touted as more accessible steppingstones to future autonomy—with safety and convenience benefits available now.
- Consumers are confused by inconsistent ADAS terminology and lack of good education. Kelly Funkhouser of Consumer Reports: “It’s a lot to ask consumers to blindly trust the tech without good demos.”
- Reimer: “Consumers sometimes drive out of a dealership service station with a different vehicle than they came in with because of a software update. Do they really understand that?”
- Government and industry agree that more education, standards, and regulations are needed to impose structure, balance, and safety. No one seems quite sure what this landscape looks like or how it will evolve.

# Conference Session: The Vehicle as a Marketplace

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- Future car will be a mobile marketplace: Order a cheeseburger, book a hotel, reserve a table at your favorite restaurant, and discover promotions and discounts on products and services—all en route in real-time.
- Integration with your smartphone's calendar and to-do list (like an oil change).
- Captive audience that spends an average of 1 hour daily in the vehicle.
- Companies and advertisers are eager to figure out how to make shopping as frictionless as possible.
- Security is key. In-car facial recognition and voice biometrics that authenticate a person may become the norm.
- Andrew Poliak of Panasonic: "Our creepy is the next generation's comfort."
- 17 billion dollars in ecommerce will be taking place in the automobile by 2025.
- While the panelists paid lip service to driver safety, it really does confirm that the last thing drivers will be paying attention to is the actual road.



BMW's i3 Urban Suite.



BMW's i3 Urban Suite.



ConnectedDrive Notifications My Vehicle  
No connection 0 53.6  
No notifications 3.0



# Bits and Pieces Overheard

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- “Israel is home to over 500 AV companies!”
- “It’s an evolution versus a revolution: We’re going to be driving for decades to come.”
- “When an AV interacts with pedestrians, a big problem is no eye contact. We’ve developed monitors inside and outside so that the peds know the car has detected them. One key development target to make AVs successful is nurturing that kind of trust level.”
- “We need to ask not about when we’re going to get AVs, but when we’re going to get 50 percent fewer vehicles?”
- “We need to be clearer with ADAS terminology and on what this tech can and cannot do.”
- “If the public cannot trust us because we use overly aggressive marketing language, this will tank the industry—dangers of the hype machine.”
- “There is far too little discussion on what the benchmarks of V2V should be: It should be significantly safer than the safest trucks on the road today than what we *actually* have.”
- “Tech companies do not fully understand what cities face; they come in with their gee-whiz philosophy. As city planners, we need to make the time to share with them from the beginning.”





