

How Autonomous Cars and Buses Will Change Urban Planning (Industry Perspective)

Driverless vehicles show promise as one of the biggest technological breakthroughs since the assembly line.

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The driverless vehicle shows promise as one of the biggest technological breakthroughs since the assembly line. The safety benefits alone have prompted the U.S. Department of Transportation to propose a rule requiring new light vehicles to be manufactured with autonomous technology. By expediting its growth, our roadways will be safer and our environmental footprint smaller. The question is, are U.S. cities ready for driverless cars?

When you consider that city planning has largely revolved around roadway infrastructure, the urban form as we know it will be radically transformed by self-driving technology. While

scenarios), it's important to consider the net effect autonomous cars will have in order to fully gauge how the American city might brace itself over the next few decades.

REMOVING PARKING INFRASTRUCTURE

Some schools of city planning maintain that driverless technology will impact parking the most. The presumption isn't all that far-fetched, either.

For instance, fully autonomous vehicles can drop off passengers right at the curb, and having to search for a parking spot will become a distant memory. Parking garages can thus be repurposed for housing or low-rent commercial buildings, or demolished altogether for public spaces. They might be moved outside of urban centers, where they can house a greater number of cars since pedestrian accommodations like stairs, elevators and wider lanes won't be needed.

Additionally, according to a [study from the University of Connecticut](#), parking-oriented cities tend to hinder development, splinter the city, and worsen traffic by impeding walking, biking and public transit. What's more, cities that are committed to buildings generate a minimum of 88 percent of tax revenue, sometimes more, while parking offers little, if anything.

STREAMLINING HIGHWAY INFRASTRUCTURE

Roadway infrastructure is largely designed to accommodate human error, what with wider streets, guardrails, medians, lane markings, signage, etc. Considering that one of the main precepts of self-driving tech is eliminating human error, the possibilities it offers are astounding.

The overwhelming majority of auto collisions are the result of human error. But with autonomous vehicles, gone are the days of worrying about drivers over-correcting, jumping over curbs, and colliding with pedestrians, trees or infrastructure. Narrower lanes and the removal of "obstructions" like traffic lights, guardrails and medians can make way for pedestrian-centric infill, including street trees, bike lanes and public

Moreover, driverless cars are becoming quieter and cleaner. When they hit our roads, vast stretches of sound walls, rumble strips and buffers may no longer be needed. What were once concrete-laden highways fissuring our cities may be reimagined as tree-lined boulevards rich in vegetation. Thus, you have improved air quality and a highway system more apt for communal life.

THE QUESTION OF INCREASED OR DECREASED TRAFFIC

With all that said, will driverless cars actually decrease traffic? Carlo Ratti, director of the MIT Senseable City Lab, thinks so.

Thanks to a combination of ride-sharing programs and autonomous vehicles, Ratti argues that traffic can be reduced by up to 80 percent. In essence, fewer vehicles means less congestion, less noise pollution, shorter commutes and a smaller eco footprint. Again, the urban form as we know it may very well be reconfigured into a new paradigm that's focused on parks, plazas and public spaces. But this hopeful forecast isn't without a glaring caveat.

The general effect of extending a cheaper, accessible commodity is that people will use it more — not less. It's not just passenger vehicles that'll have greater use, either, but also self-driving city buses, delivery vans, garbage trucks and other cars that inundate city streets. Without regulations or disincentives, we might actually see more vehicles on the road.

When it comes down to it, though, there's no all-encompassing prediction for how self-driving vehicles and buses will impact development. What we can say is that people will rely heavily on transportation and that advancements will bring new possibilities, challenges and unforeseen effects. While U.S. cities aren't currently ready for self-driving cars, urban planners can begin incorporating them into policies and strategies to augur in a new era of efficiency and mobility.

GIVING THE CITY BACK TO ITS CITIZENS

This trend of shifting away from a vehicle-centric model, to one devoted to its citizenry is already in the works. In Barcelona, for example, a design underway entails a grid system of mini neighborhoods — otherwise known as “superblocks.” In this model, spaces will be repurposed with greenery, offering respite from car dominance and the resulting pollution and noise.

This concept is founded on the principles of 19th-century engineer Ildefons Cerda, who believed a city should breathe. Each block has a garden at its center and services accessible to both rich and poor — and around which traffic could flow smoothly. Furthermore, it was through this process that Cerda coined a term that's used universally to this day: “urbanization.” Although this new development hasn't been implemented yet, cities around the world may be wise to take a cue.

Eric Madia is vice president of auto product at Esurance, where he is responsible for designing the company's auto product lines.