

### Driverless cars

Driverless cars are expected to be rolling into the streets within the next 20 years. In fact, they've legally been on the roads for the past years, approved for testing purposes. It is predicted that driverless vehicles will be commercially available at a high cost within 7 years, but it may take another 8 years for prices to drop enough to spur mass consumption.

Today, the discussions focus primarily on the shifting of accident liability to manufacturers and all the goodness that comes along with reducing accidents. A truly driverless road would not be accident-free as there would still be a number of accidents caused by mechanical or computer errors, weather conditions, pedestrians and sheer random chance. But it would make the now-routine loss of life on the roads far rarer.

The concept of a "driver" will be replaced with that of an "operator", who simply programs the vehicle's GPS to arrive at the desired destination and pushes the "Start" button to begin the trip. Since judgment will no longer be required of the operator, they won't need a driver's license. Theoretically, a 10-year-old child could independently take the car to school in the morning.

Computer-operated cars will eventually reshape the car design as things like windshields will become less necessary. Drivers will be able to sit wherever they'd like in their cars. There will be no need for gas and brake pedals as speed will be automatically controlled by the computer. The steering wheel and the turn signal arm can also be eliminated once the public gets used to reliability of these vehicles.

Each passenger will have a personal video display informing about a current location, the distance to your destination, speed and personal entertainment selections. The concept of 'distracted driving' will disappear as there will be no reason to pay attention to where you are going.

Vehicle owners will no longer buy collision insurance since manufacturers will be solely responsible for damage. Owners will only need theft insurance and coverage for hail, falling objects or floods. To take this one step further, personal vehicle ownership may dramatically diminish. Car dealers will have lots full of vehicles for hire on a daily or hourly basis instead of vehicles for sale. When you need a car, you'll summon one using your mobile phone. The closest unmanned vehicle will be dispatched to your home to take you where you need to go. When done, you'll simply push the button for the unmanned vehicle to drive itself back to the rental lot.

The social and cultural impact of driverless cars could cause far more upheaval than any of us could imagine. Perhaps, it would be even greater than the impact the Internet had on commerce and communication. Obviously, the picture being painted is the one that assumes total adoption, which is far from realistic. You will always have transitional delays caused by the lack of free cars, the longevity of today's vehicles and cultural resistance.

This resembles the historical factors that affected the transition from horse to the automobile. At the moment, the driverless car seems like a novelty. However, it will open up new prospects. The prospect of flying cars may soon become a reality. With computer-controlled vehicles that strictly follow traffic rules, threedimensional roads become far less scary and more a matter of simply solving the technological challenge.

Where we're going, we may not need roads at all.

Which of the following, according to the author, will a driverless car have?

1. Gas and brake pedals.
2. A steering wheel.
3. Video displays.
4. A turn signal arm.