Autonomous Vehicle Implementation - Three Scenarios
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Right now, you cannot buy an autonomous vehicle. Before that time comes, it is interesting to consider three autonomous-vehicle implementation scenarios - involving chains of commercial vehicles, ride-share urban applications, and personal cars.

The first autonomous vehicles available for routine use will probably look like their non-autonomous counterparts. For a while, autonomous vehicles will need to share roads and highways with human-driven vehicles. Fully automated controls operated by artificial intelligence, advanced communications equipment and a wide array of sensors will render vehicles autonomous. Although miniaturization will make many of these components smaller than those in prototypes, there will nevertheless be significantly more electronic equipment in autonomous vehicles. At least in the early years, a steering wheel and driver's seat will remain in autonomous vehicles, because of either regulatory requirements or the need to cope with an unpredictable mix of autonomous and non-autonomous vehicles on shared roadways.

Probably the earliest implementation of autonomous vehicles will take the form of commercial vehicles linked together by sensors and communications devices. These autonomous vehicles would efficiently move freight from one terminus to another. Only a very small space is needed between each vehicle when autonomous vehicles operate in what are called "platoons." Such a chain of vehicles can be made up of trucks with added communications, sensors and automated systems that enable them to follow closely behind each other. Among the policy issues raised by this type of autonomous vehicle will be labor issues, as well as the possible need for dedicated lanes for commercial autonomous vehicle platoons.

At about the same time, in urban areas ride-share autonomous vehicles are likely to become available. In a ride-share application, fleets of autonomous vehicles would be available for relatively short journeys in urban areas. An autonomous vehicle would dependably arrive shortly after a would-be passenger enters a few clicks on his or her smart device. Of course, taxi companies and existing ride-share companies are likely to object to added competition. Autonomous ride-share vehicles would need to be equipped with highly detailed urban maps, together with real-time traffic data for route guidance through congested urban areas. It is possible that ride-share associations, or clubs, owning fleets of autonomous vehicles, would form to provide more exclusive autonomous urban transportation for members, avoiding the expense of purchasing, garaging or maintaining a specific vehicle.

It seems likely that the autonomous personal car – or family car – will be the last type of autonomous vehicle to come into wide use. When autonomous personal vehicles are first launched into the consumer market, these vehicles will probably cost more, compared with human-driven vehicles. In addition, privacy concerns and mistrust of automation may discourage adoption. Some drivers may be reluctant to stop driving because they enjoy the psychological and recreational benefits of personally controlling a 3,000-pound machine.

Various types of autonomous vehicles will be hitting our roads in the near future. Before they arrive, it is important to consider possible implementation scenarios for autonomous vehicles and the policy issues they will raise.