Article Analysis
Leaving the Driving to a Computer Has Big Benefits

Student _____ **Class Period** _____ **Due** _____

Your **margin** will count for your score in this assessment.
Read the article **carefully** and **make notes in the margin**.

Notes should include:
- Notes that differentiate between **fact** and **opinion**.
- Observations about how the **writer's strategies** (organization, word choice, perspective, support) and choices affect the article.
- Questions

Leaving the Driving to a Computer Has Big Benefits

Notes on my thoughts, reactions and <u>questions</u> as I read:

WASHINGTON (AP) — In some ways, computers make ideal drivers: They don't drink and then climb behind the wheel. They don't do drugs, get distracted, fall asleep, run red lights or tailgate. And their reaction times are quicker.

They do such a good job, in fact, that a new study says self-driving cars and trucks hold the potential to transform driving by eliminating the majority of traffic deaths, significantly reducing congestion and providing tens of billions of dollars in economic benefits.

But significant hurdles to widespread use of self-driving cars remain, the most important of which is likely to be cost. Added sensors, software, engineering and power and computing requirements currently tally over $100,000 per vehicle, clearly unaffordable for most people, the study said. But large-scale production "promises greater affordability over time," it concluded.

Questions also remain about public acceptance, liability in event of an accident, and the ability of automakers to prevent car computers from being hacked.

Nevertheless, the advantages of self-driving cars are such that if only 10 percent of cars and trucks on the road were self-driving, they could reduce traffic deaths by 1,000 per year and produce nearly $38 billion in economic and other savings, said the study by the Eno Center for Transportation, a foundation dedicated to improving transportation.

If 90 percent of vehicles were self-driving, as many as 21,700 lives per year could be saved, and economic and other benefits could reach a staggering $447 billion, said the study, a copy of which was provided to The Associated Press.

"There will be many steps before we get to that, but it does feel like there is a whole new world that completely changes everything in terms of our perspective on driving that could emerge eventually," said Joshua Schank, Eno's president and CEO.

For example, the passenger compartment may be transformed as former drivers safely work on laptops, eat meals, read books, watch movies and call friends. And cars that can be programmed to pick up people, drive them to their destination, and then park by themselves may change the lives of the elderly and disabled by providing critical mobility.

Once a critical mass of self-driving cars is on the road, they can start "platooning" — driving closely together but keeping a steady distance between each other without the fuel-burning, time-

wasting, stop-and-go typical of traffic congestion. That could smooth traffic flows, reduce commute times and increase highway capacity.

Government research indicates driver error is likely the main reason behind over 90 percent of all crashes. Over 40 percent of fatal traffic crashes involve alcohol, distraction, drugs or fatigue. But self-driven vehicles wouldn't fall prey to such human failings, suggesting the potential for at least a 40 percent reduction in fatal crashes, the study said.

Crashes can also be due to speeding, aggressive driving, over-compensation, inexperience, slow reaction times, inattention and various other human driver shortcomings, the report noted, suggesting that computers could also reduce those.

But Clarence Ditlow, executive director of the consumer advocacy group Center for Auto Safety, cautioned that while self-driving cars hold great promise for reducing accidents caused by driver error, much will depend upon the safety standards the government sets for the vehicles and how well manufacturers make them.

Otherwise, he said, "you could be substituting computer errors for human errors."

Spurred by what some see as the future direction of the auto industry, carmakers are stepping up their research. General Motor and Nissan are furthest along, but Audi, BMW, Ford, Mercedes-Benz, Toyota, Volkswagen and Volvo have also begun testing driverless systems. Google's self-driving cars have clocked over 400,000 miles on California public roads.

Many of the features that go into creating a self-driving car are already available, especially in high-end cars. Adaptive cruise control adjusts speed faster or slower in response to traffic. Lane departure systems warn drivers when they're drifting out of their lane, and some can even automatically steer the car back. Collision avoidance systems automatically brake to prevent front-to-rear crashes. And parking assist systems range from rearview cameras that show drivers what is behind them to vehicles that can actually park themselves.

The hardest part will likely be making self-driving cars "cost effective to the point where this is not just a gadget that some people enjoy, but becomes mainstream," Schank said.

For example, hybrid and electric vehicles still haven't overcome their price gap with conventional vehicles, and so remain at a smaller share of the auto market than people had anticipated they would be at this point, he said.

States are already seeking to prepare the way for self-driving cars to join other vehicles on the road. California, Florida and Nevada have passed laws to regulate the licensing and operation of self-driving cars. California has directed that licensing requirements be ready by 2015.

The National Highway Traffic Safety Administration has urged states to establish procedures for testing self-driving cars on public roads, but has also cautioned states against licensing sales of the vehicles to the general public. The agency is also conducting research on the vehicles.

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